LCD-Monitor

Chassis	Model
LS17PEA	732N
	732NPLUS
LS19PEB	932B
	932BPLUS
LS19PEA	932NPLUS

SERVICE Manual

TFT-LCD Monitor

Fashion Feature

-Lustrous/Colorful Appearance (Design)
-Integrated UI applied
-Built-in Scaler Sync Separator
-Connectivity :
LS17PEA, LS19PEA - Analog (15p Dsub)
LS19PEB - Analog (15p Dsub),
Dual (24p DVI-D)
-Power Consumption : 17"(34W), 19"(38W)
-DPMS : under 1 W (230Vac)

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LS17PEA/LS19PEA/LS19PEB Service Manual

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3 调整和调节

维修手册本章说明如何使用 DDC 管理工具。
该功能为更换 AD 板和程序存储器（IC110）所需。

3-1 所需的设备

以下设备为调整显示器所需。
-装有Windows 95、Windows 98、或Windows NT的计算机。
-MTI-2031 DDC管理工具

3-2 自动色彩调整

若要输入图像，使用 16 级灰度或任何使用黑色和白色的图形。
1. 为 OSD 语言选择英语。
2. 按 “ ↵（确定/来源）” 键 5 秒钟。

3-3 DDC EDID数据输入

1. 在更换 AD 印刷电路板时，输入 DDC EDID 数据。
2. 由 HQ 质量控制部门接收/下载适于该机型 DDC 文件。
   安装以下装置（图 1）并输入数据。

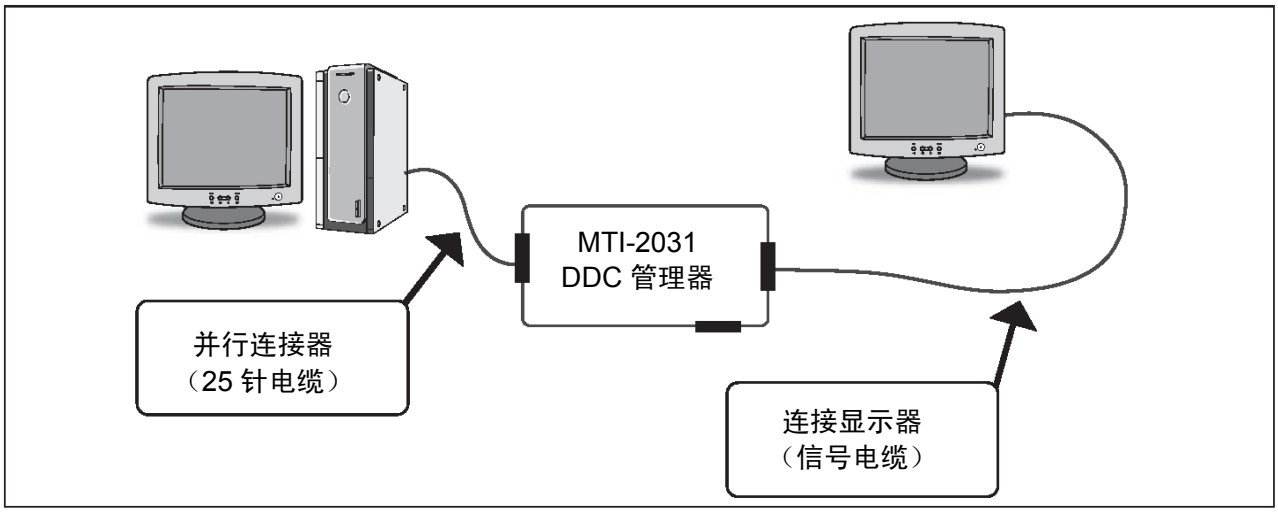


图 1

3-4 更换显示屏时在屏显示调节

1. 调整亮度和对比度到 0。然后，按下 ↵（确定/来源）键 5 秒。
   维修功能 OSD 出现在屏幕上。
2. 按 + 键将光标置于显示屏上。按菜单键 5 秒。

3-5 仅更换灯时在屏显示调节

1. 调整亮度和对比度到 0。然后，按退出键 5 秒。
   维修功能 OSD 出现在屏幕上。
2. 按 + 键。选择上灯并按菜单键 5 秒。
   然后，选择下灯并按菜单键 5 秒。

***-注意：**如欲了解维修功能的详情，请务必阅读以下说明。*

3-6 维修功能说明

3-6-1 如何显示维修功能 OSD

1. 亮度和对比度值应变为零。
2. 在 5 秒内，按 ↵（确定/来源）键。
3. 维修功能 OSD 将显示。

-如果您想取消维修功能 OSD，则必须断电。

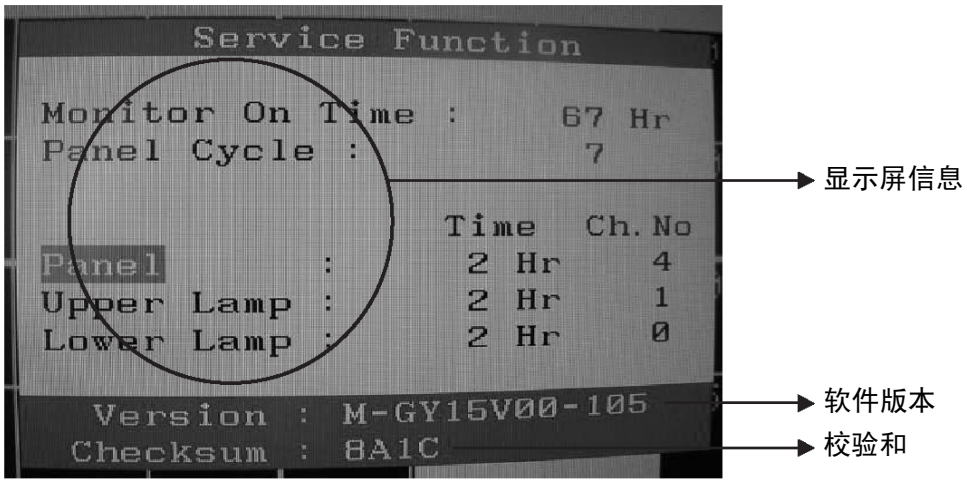


图 2. 维修功能 OSD 举例

维修功能 OSD 是基于 29 列×12 行的网格。
维修功能 OSD 包含显示屏信息、软件版本和 MICOM 检验和。

3-6-2 如何控制维修功能 OSD

1. 在 OSD 上选择了显示屏时，在您按下右键时，底色会改变成蓝色，从“显示屏”到“上灯”，“下灯”。

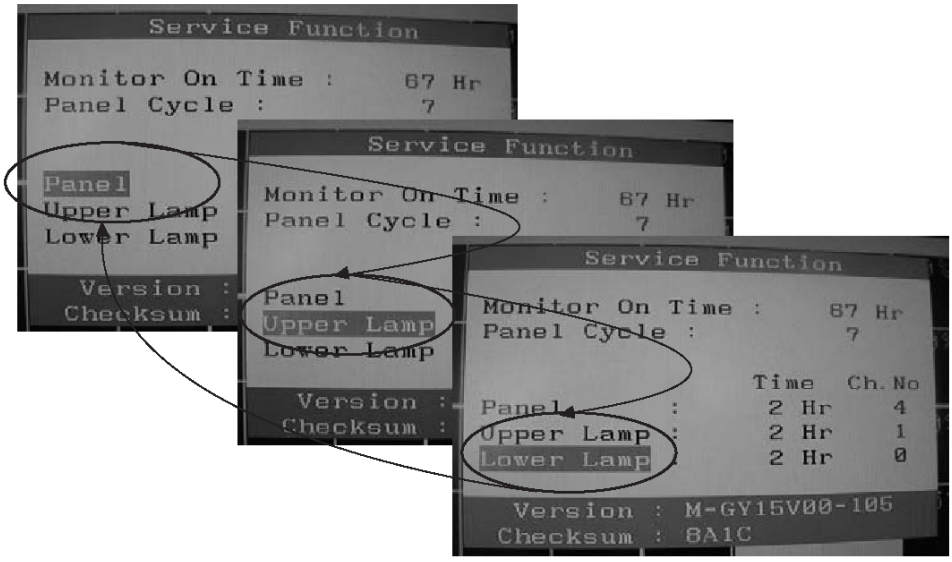


图 3.

3-6-3 如何控制维修功能 OSD

-在更换显示屏或灯后，必须重设维修功能 OSD。
-更换显示屏的情况

在更换显示屏后，在 5 秒内按菜单键。
然后，显示屏频道数升高一级且显示屏时间信息被重设为零。
同时，其它信息被重设为零（上/下灯，显示屏循环）。

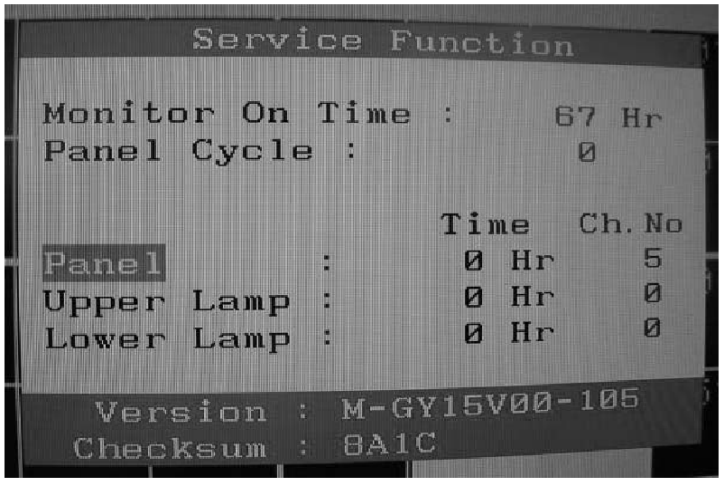


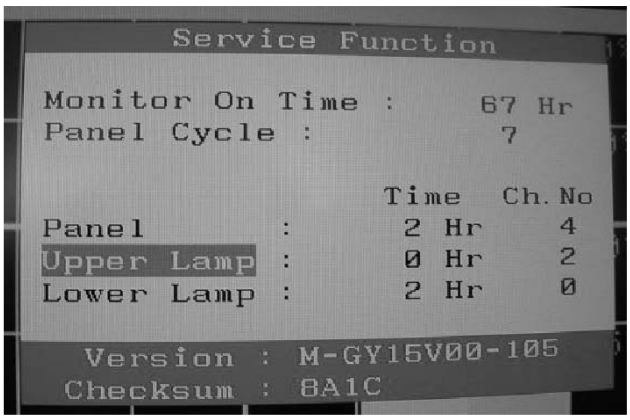
图 4.

3-6-4 如何控制维修功能 OSD

-在更换上灯或下灯的情况下

在更换上灯或下灯后，
1. 选择上灯或下灯。
2. 在 5 秒内按菜单键。

然后，频道数和时间会被重设为零（仅限于选定项）。



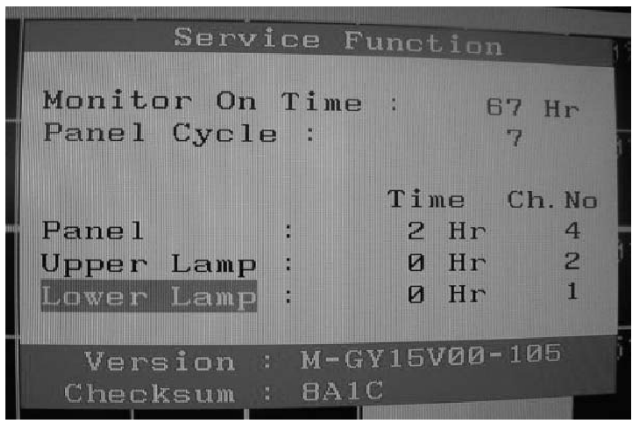
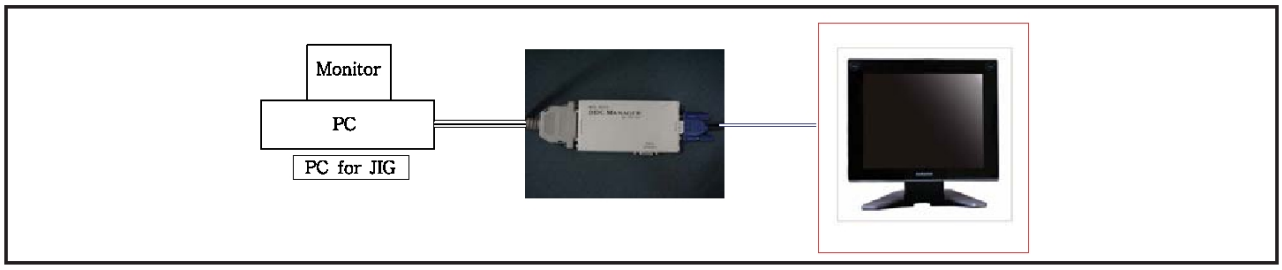


图 5、6

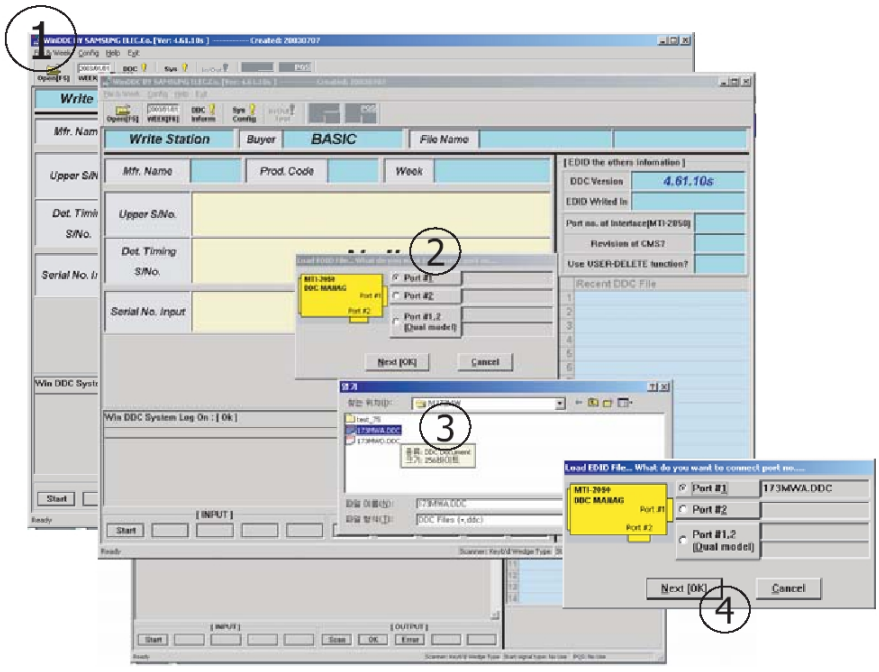
3-7 如何执行DDC

3-7-1 更换主印刷电路板组件后，确认以下项目

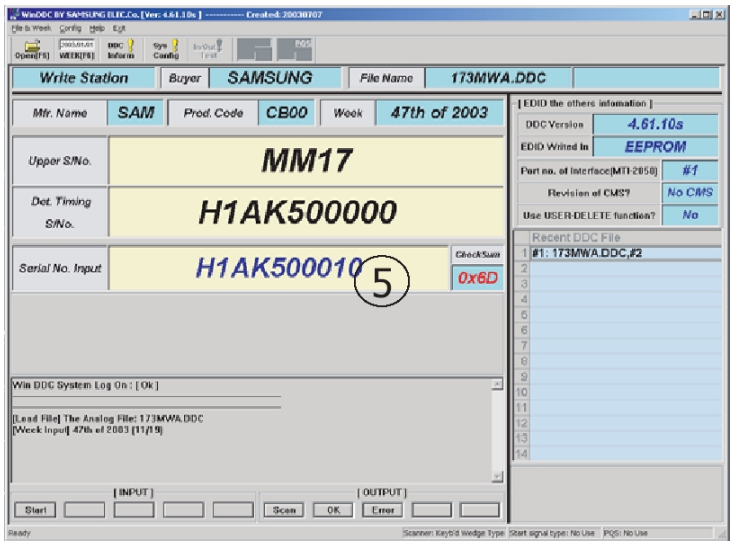
1. 检查PC颜色状态(自动色彩)
2. EDID输入(模拟和数字)
3. 检查MCU代码
   (更换MCU代码后，执行自动色彩调整)
4. 工厂预设



1) 运行DDC管理器MTI-2050
2) 选择DDC文件名称
   程序: 三星电子有限公司WinDDC [版本:4.65.12V]---修改:20050425
   DDC: 732N.ddc或932B.ddc
3) 插入DDC管理器端口1(模拟)，并向旧式双重机型进行DDC输入。
4) 插入DDC管理器端口2(数字)，并进行DDC输入。



1. 打开文件。
2. 选择端口#1。
3. 选择 DDC 文件。
4. 点击“下一步”按钮。

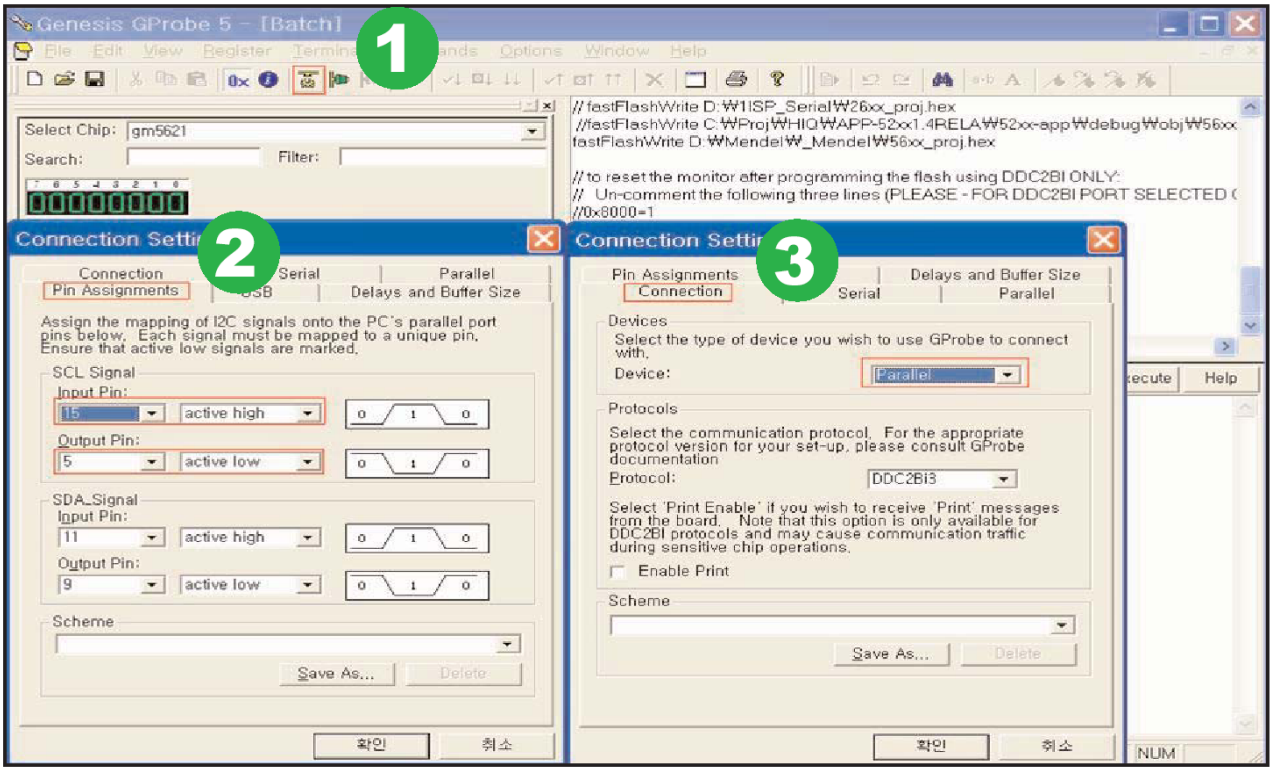


5. 键入显示器系列号并按下“确定”。

*在模拟输入后数字输入过程中，重复本步骤 2 至 5 次。

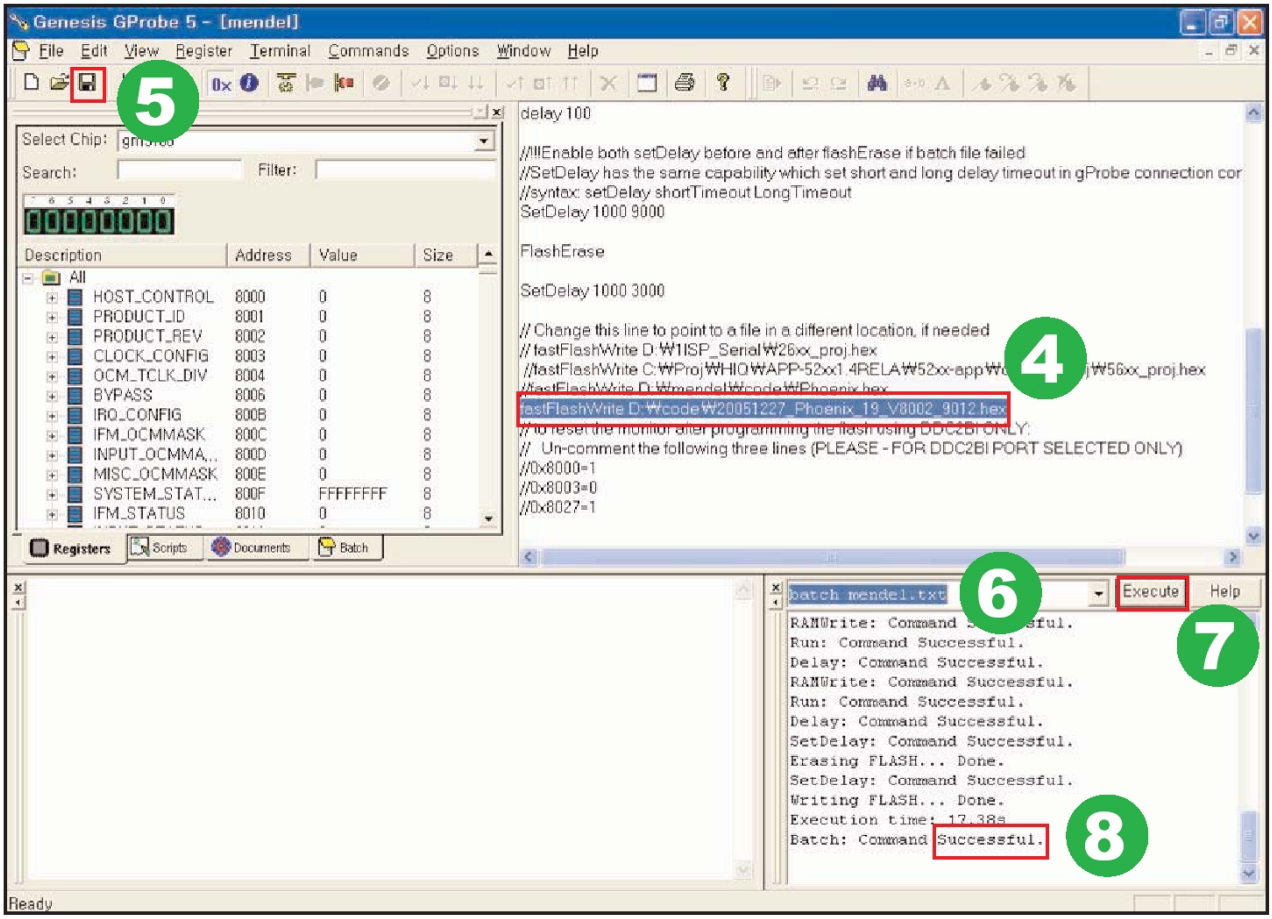
3-8如何执行MCU代码

3-8-1程序设置-配置设置



1. 点击配置设置
2. 在管脚分配上改变 SCL 信号
3. 将设备设置为并联。

3-8-2 改变批文件路径和下载代码



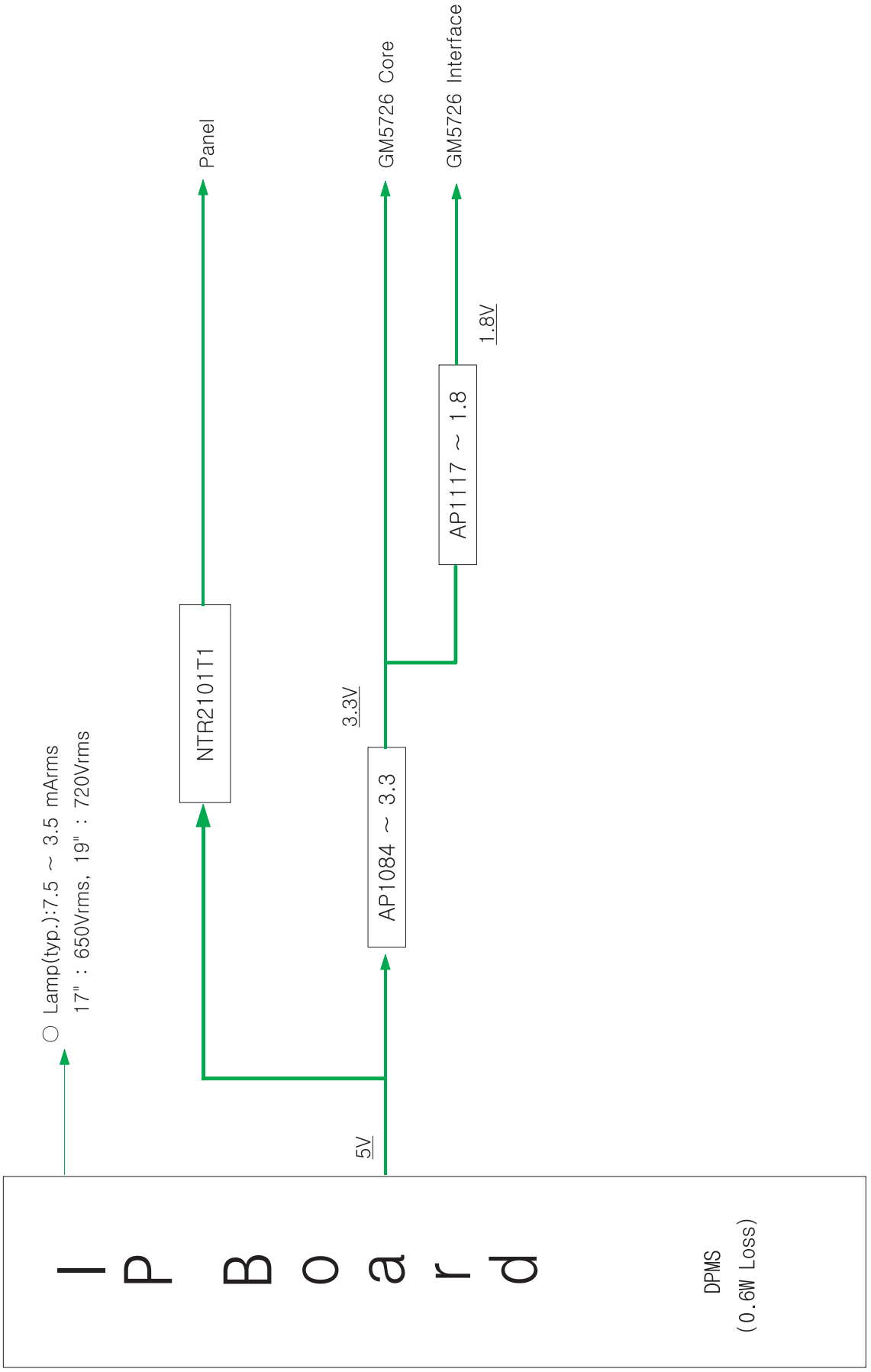
4. 将代码路径改为电脑上的存储路径。
5. 保存批文件。
6. 键入“分批”指令
   “批文件名称.txt”
7. 点击“执行”按钮
8. 如果指令“成功”，强行开/关机直至 LED 指示灯熄灭

-如果指令“错误”，

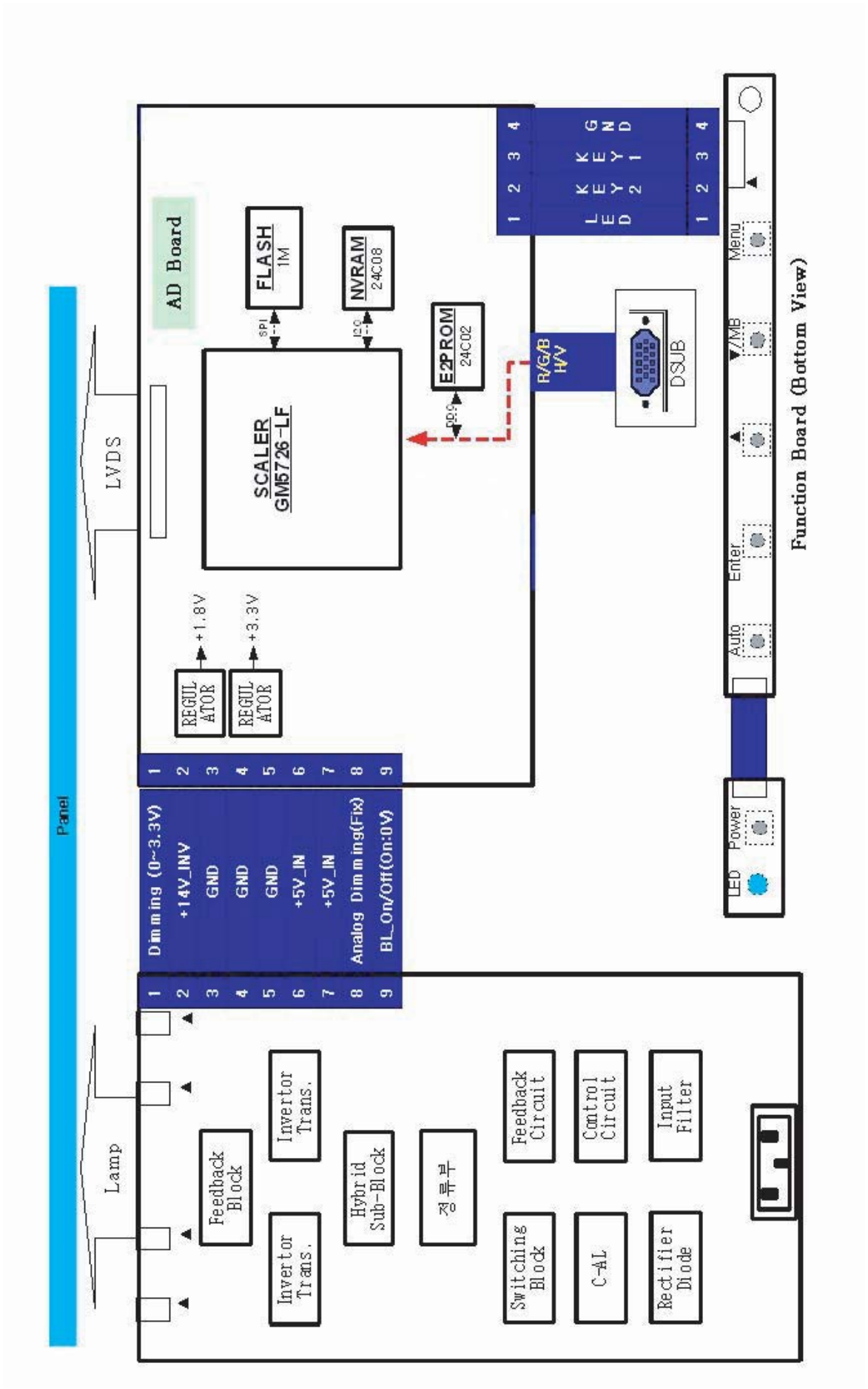
1. 强行关机
2. 键入指令“forcesa”
3. 点击“执行“按钮
4. 再次重复 7 至 9。

7 Block Diagram

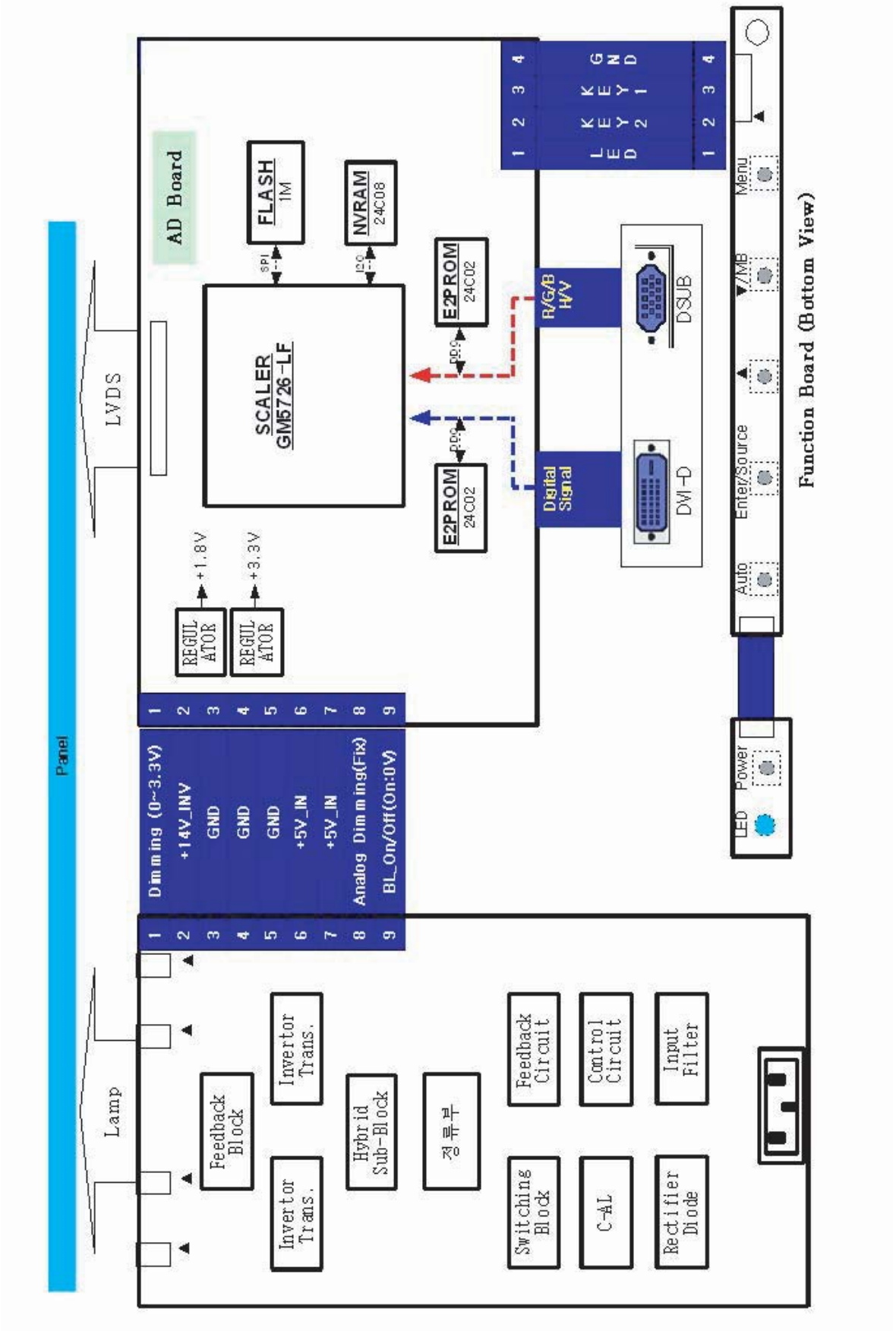
7-1 Power Tree



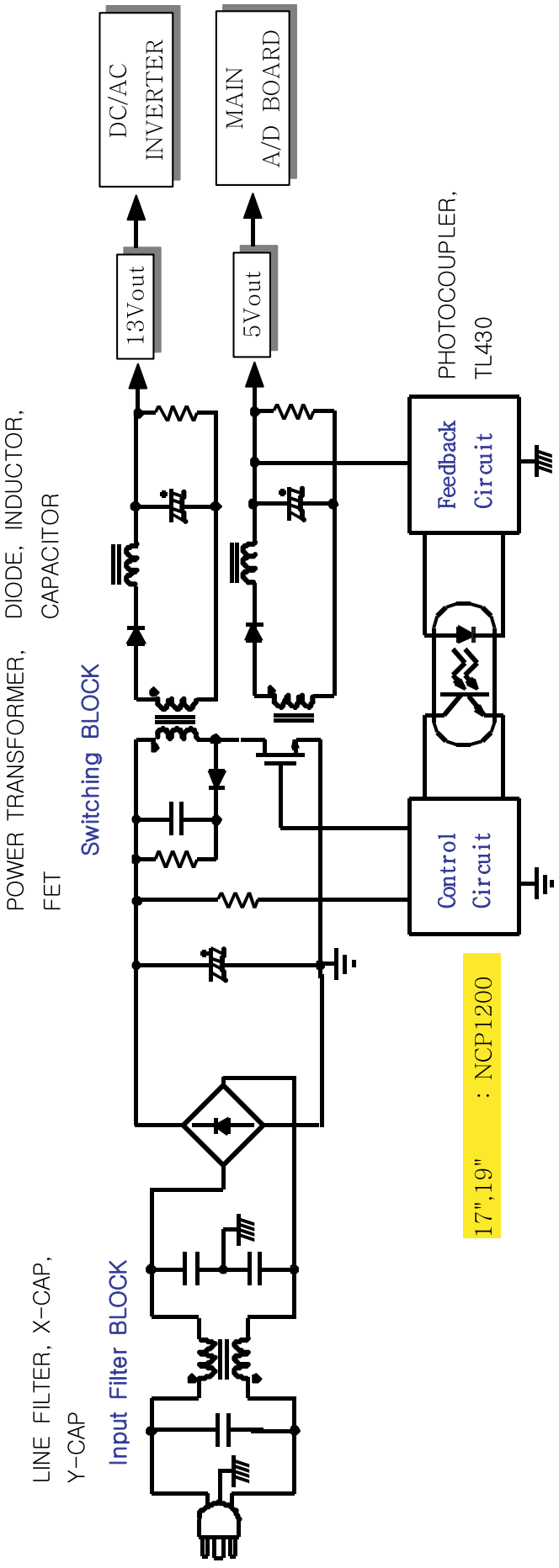
7-2 Main Board Part (LS17PEA, LS19PEA)



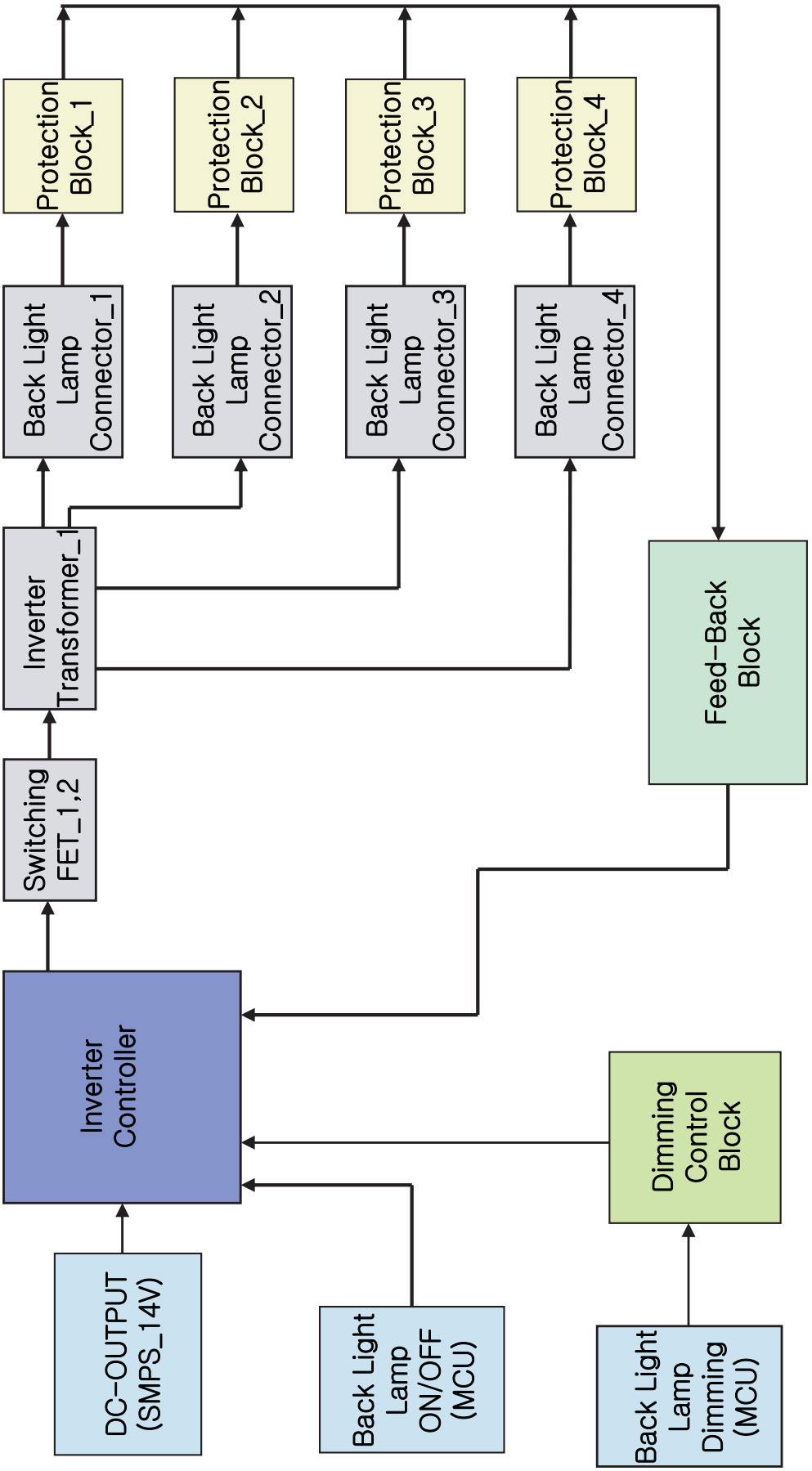
7-3 Main Board Part (LS19PEB)



7-4 IP Board Part (SMPS Part)



7-5 IP Board Part (Inverter Part)

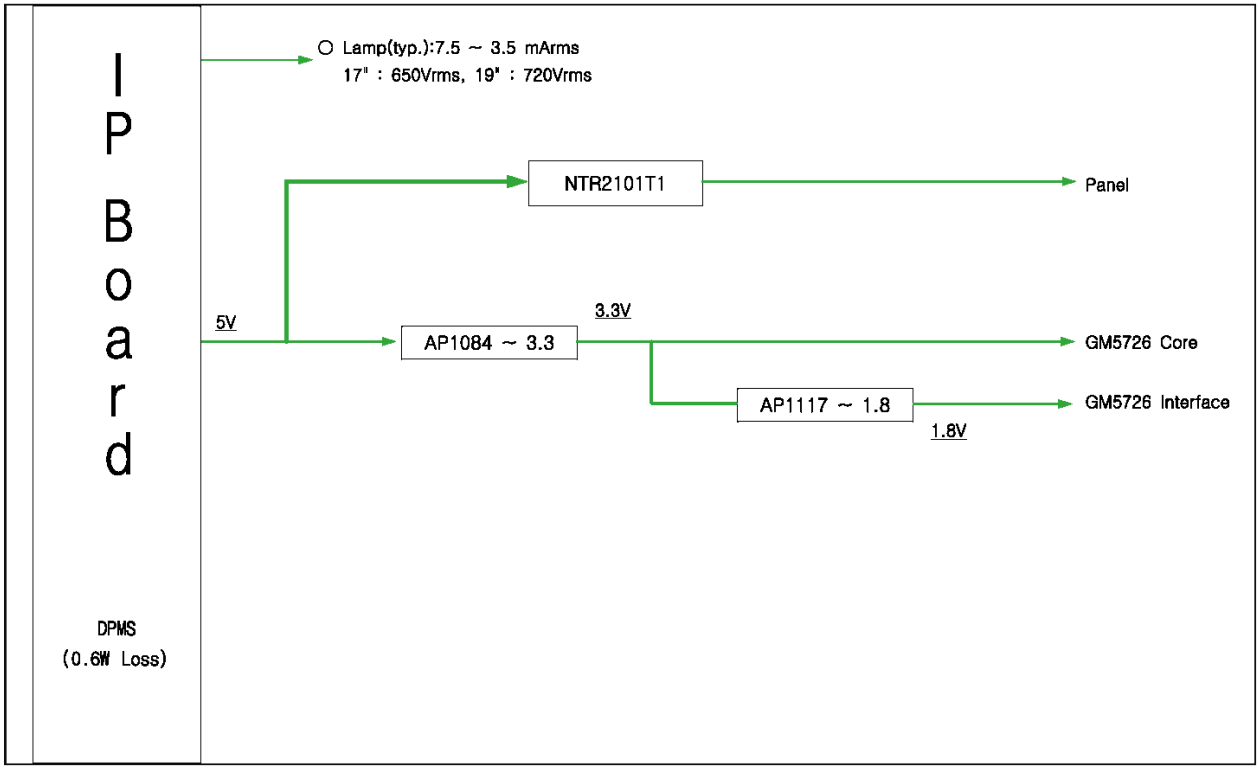


Memo

13 电路说明

13-1 总体组件结构

13-1-1 电源树形图



1. 当 AD 板处于 DPMS 状态时：

   1.1 通过 IP 进行设计，使 IP 运行所用功耗低于 0.6W。

   1.2 换算器耗电达 37mA

   1.3 关闭显示屏电源。

2. 当 AD 板正常运行时：

   2.1 显示屏灯的最大功耗如下所述（可能随显示屏制造商而异）

   17”: 4*(7.5mA* 650mVrms) = 4*4.9 = 19.6W

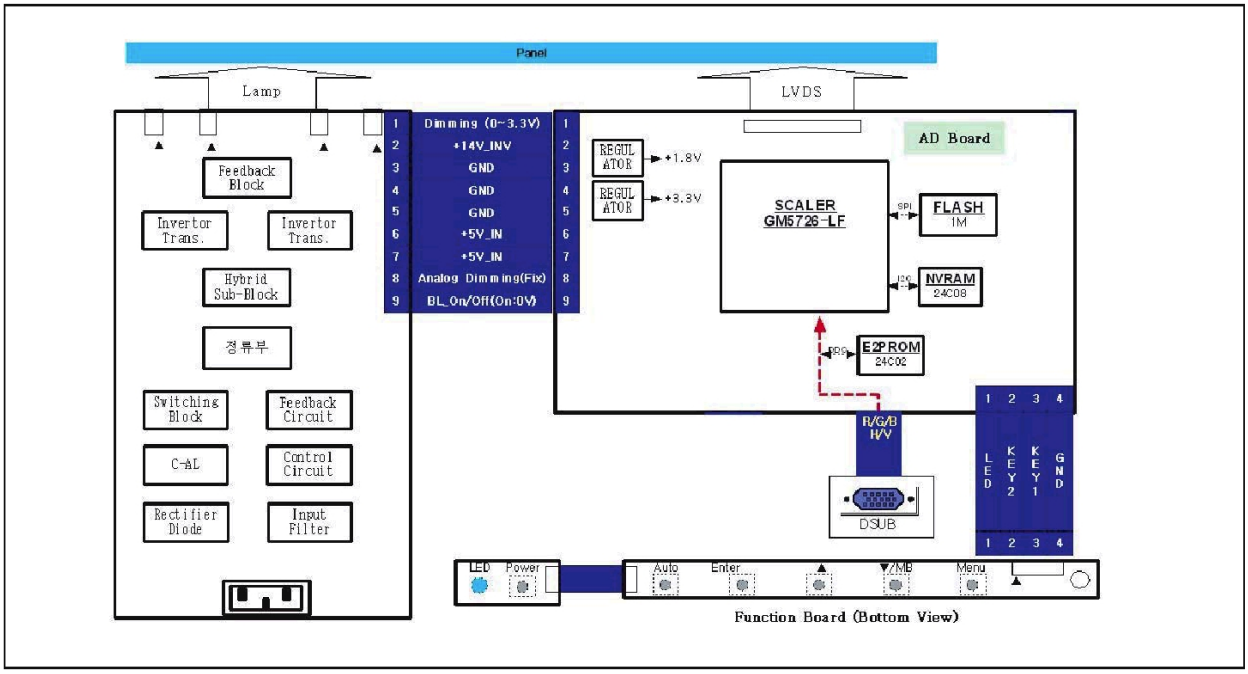
   19”: 4*(7.5mA*720mVrms)=4*5.4 = 21.6W

   2.2 显示屏控制板功耗如下：5V*720mA=3.6W

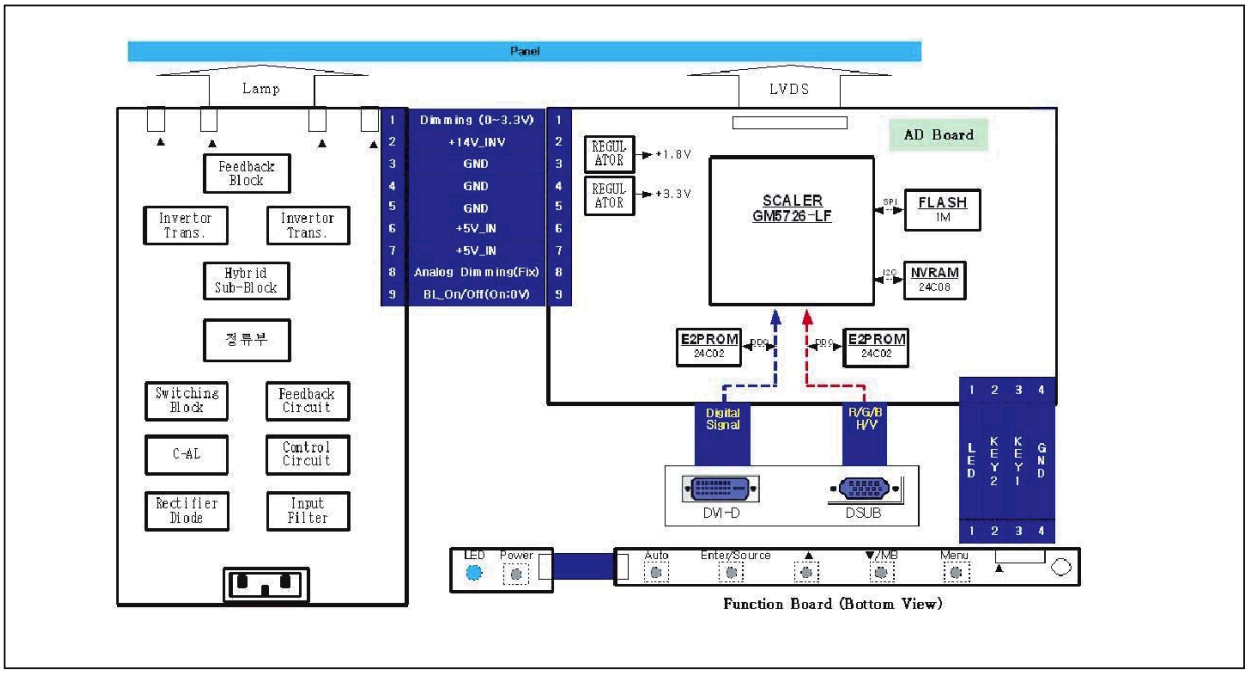
   2.3 换算器功耗如下：3.3V*245mA + 1.8V*300mA = 1.35W

13-1-2 主板零件

17"



19"



1. 变换器：将直流额定电压/电流转换为显示屏灯所需的高电压/电流的变换设备。

2. DC/DC（调节器）：DC 至 DC 变换设备的通用术语。
   IP 板接收 5V 并输出 1.8V 或 3.3V，向换算器（GM5726）供电。

3. Power MosFET：IP 板在 DPMS 模式下接收 5V 并输出较低电压，并在通常条件下向显示屏操作板提供总共 5V 电。在这种情况下，由 Micom 控制 Power MosFET 的切换。

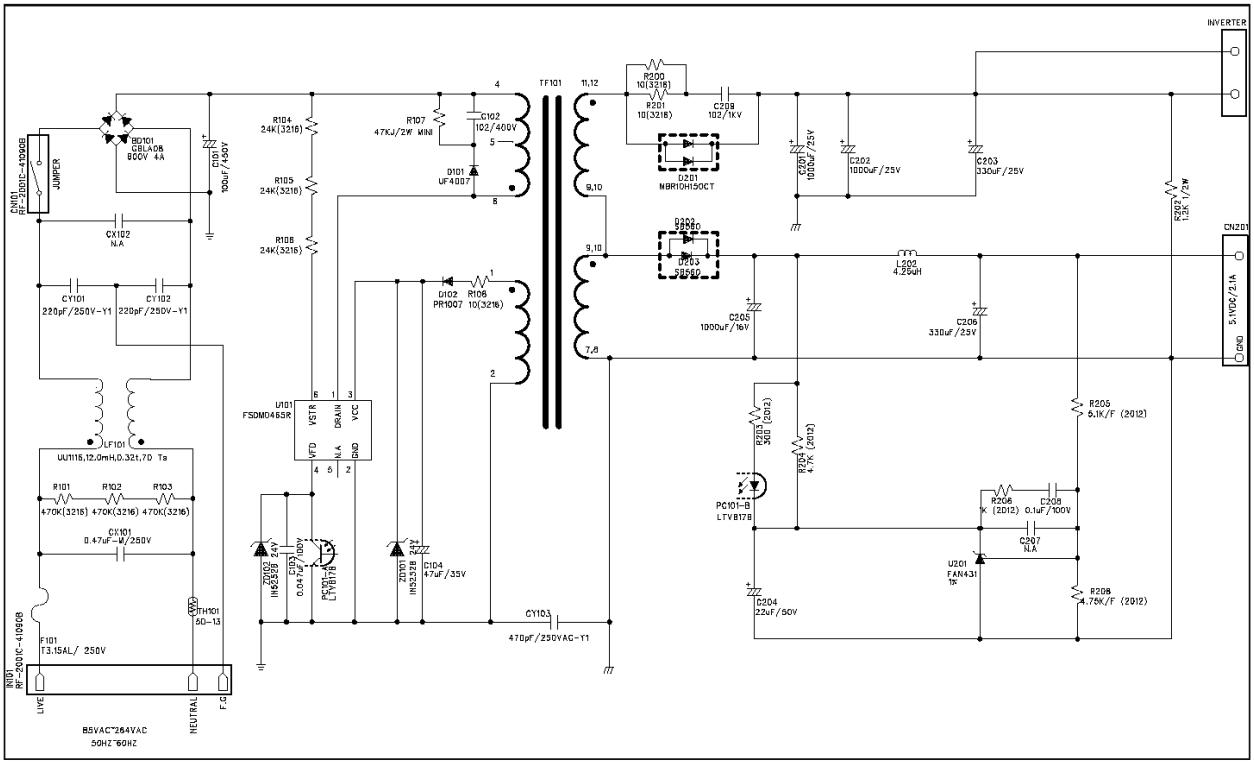
4. 换算器：接收数字 TMDS 和模拟 R、G、B 信号，并使用递增或递减功能将这些信号转换为合适的分辨率。以 LVDS 格式向显示屏传送分辨率。

5. 晶体（振荡器）：在外部使用一个 14.318MHz 振荡器同时向 MCU 和换算器供电。

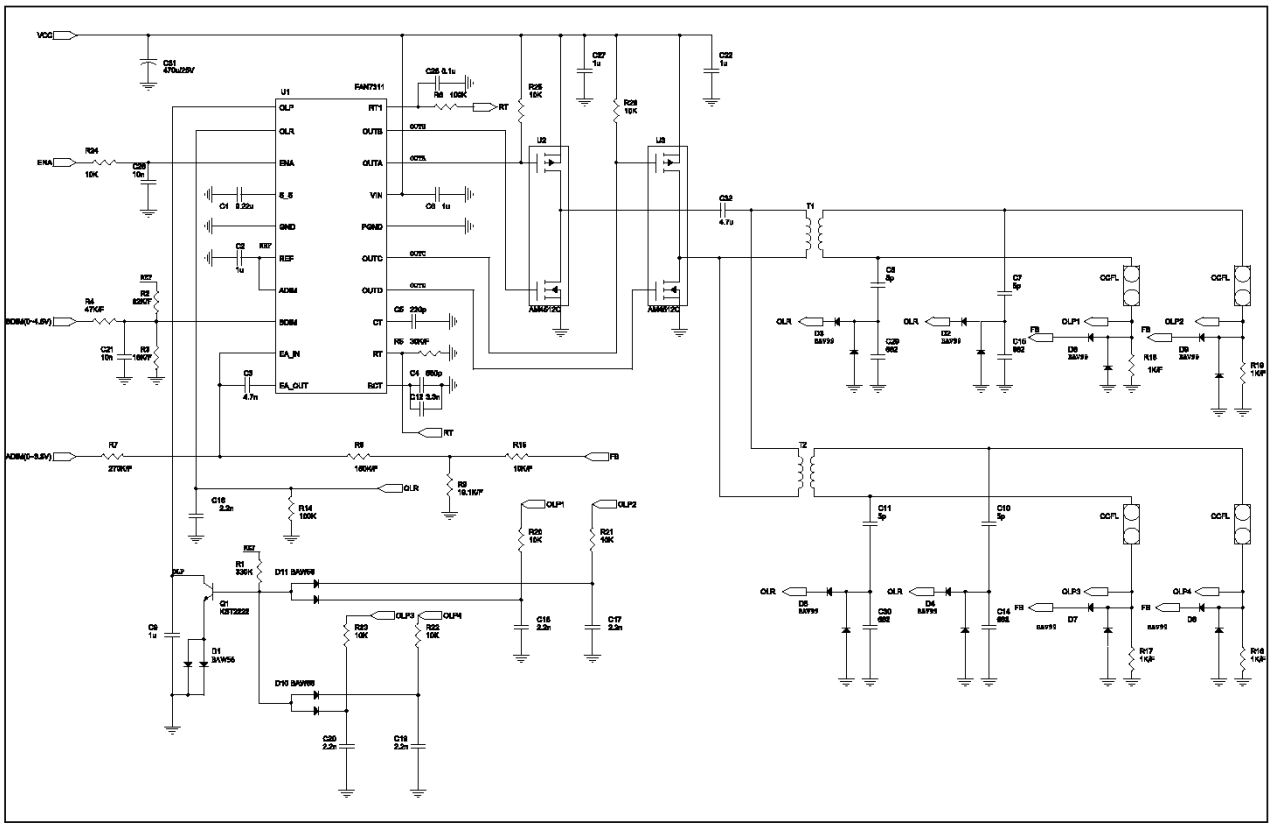
6. 换算器和 EEPROM：I2C 是支持集成电路之间通信以及 FLASH 和 EEPROM 之间通信的两路双向串行总线。
   特别是，FLASH 和换算器（GM5726）使用 SDR 直接总线相互通信，因为与旧式的串行系统相比，SDR 直接总线提供另外 4 个地址/数据线，所以是有效、高速的系统。

7. 功能键：击打特定键产生特定的电势，该电势被传送到换算器的 ADC 输入端口，然后通过芯片的 A/D 变换器变换为数字值。数字值（数据）是接收输入密钥的线索。实际上，电压被设定如下。

13-1-3 IP 板组件（供电）零件



13-1-4 IP 板组件（变换器）零件



13-1-5 IP 板（变换器）保护零件

Pebble 变换器控制器 FAN7310 有两种保护模式。

1. **OVP[过电压保护]：**如果串联电容器 C10 和 C15 的电压超过 2.0V，变换器被锁定。[见图 1]

2. **OLP[过载保护]：**如果打开变换器输出线束（未输出电流），Q1 基极导通，并将 C9 改变 2V 以上，然后锁定变换器[见图 2]

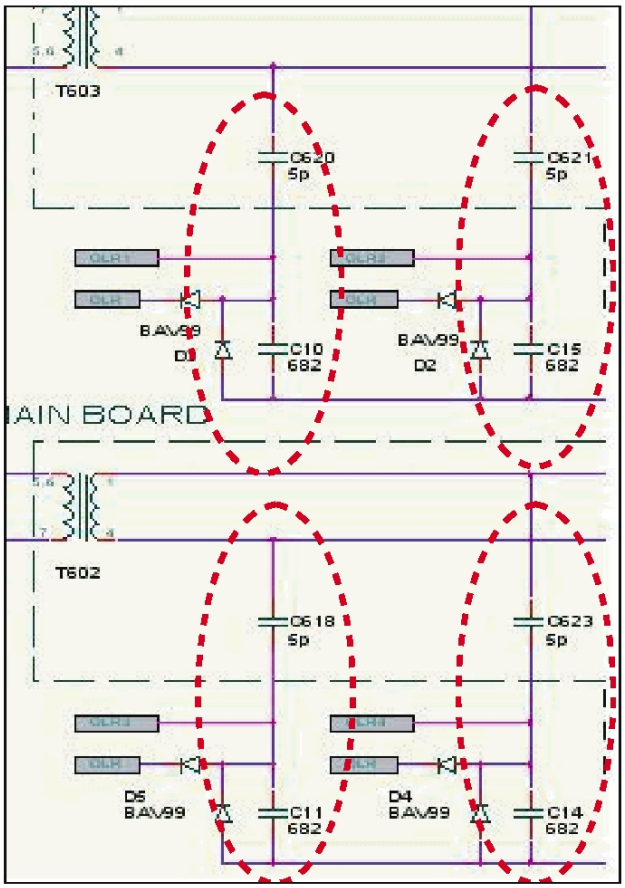


图 1

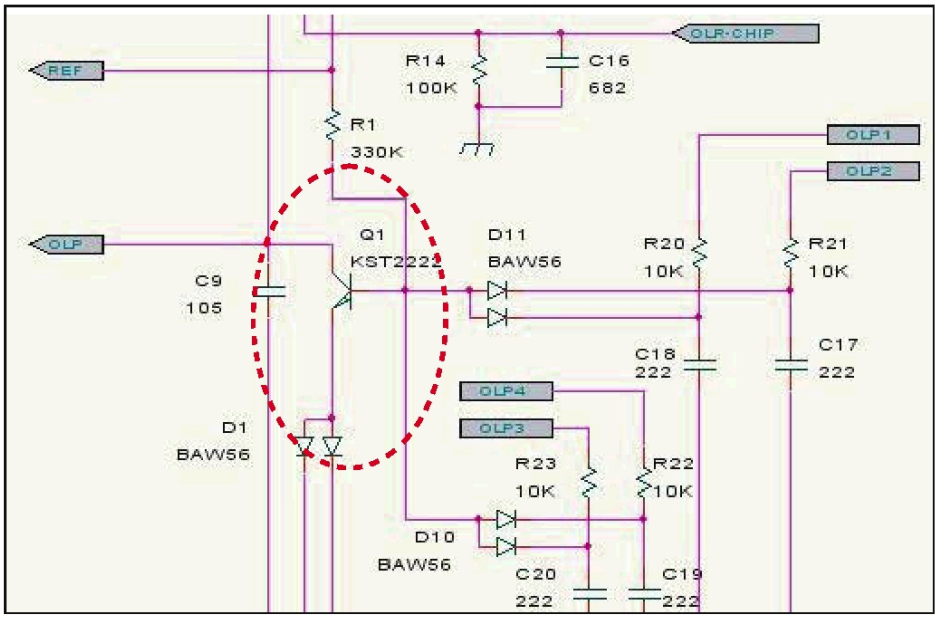
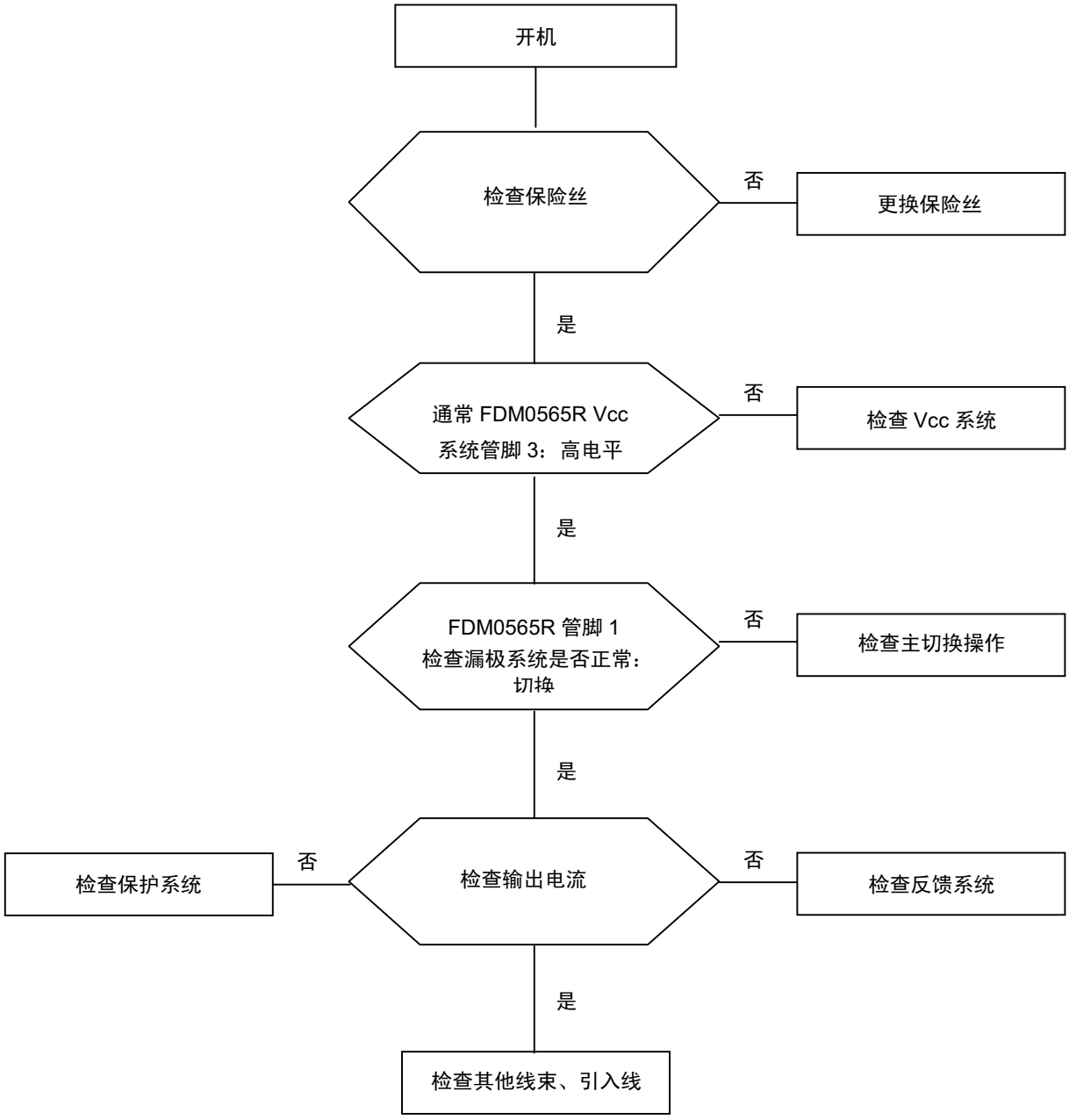


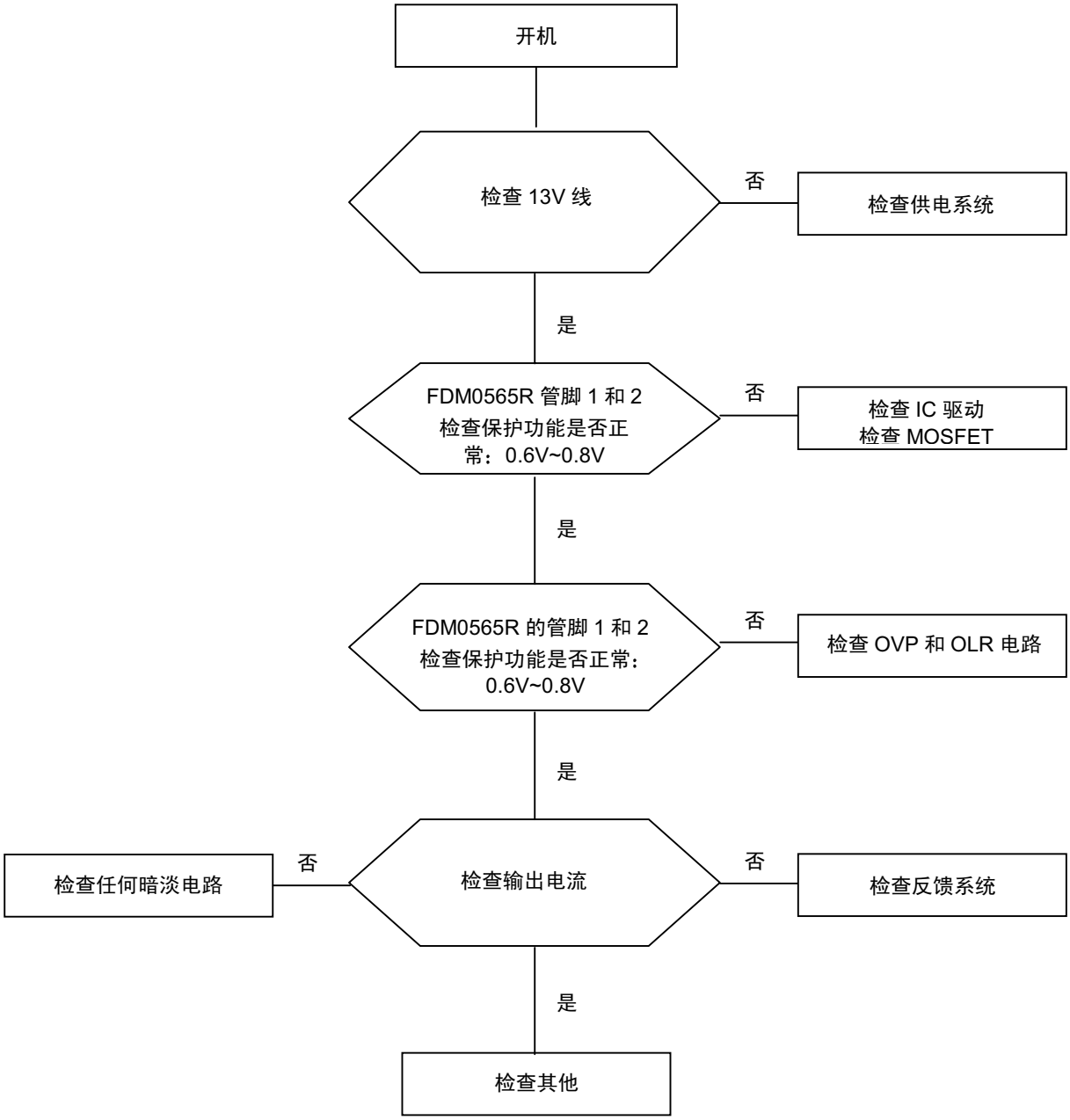
图 2

13-2 故障排除

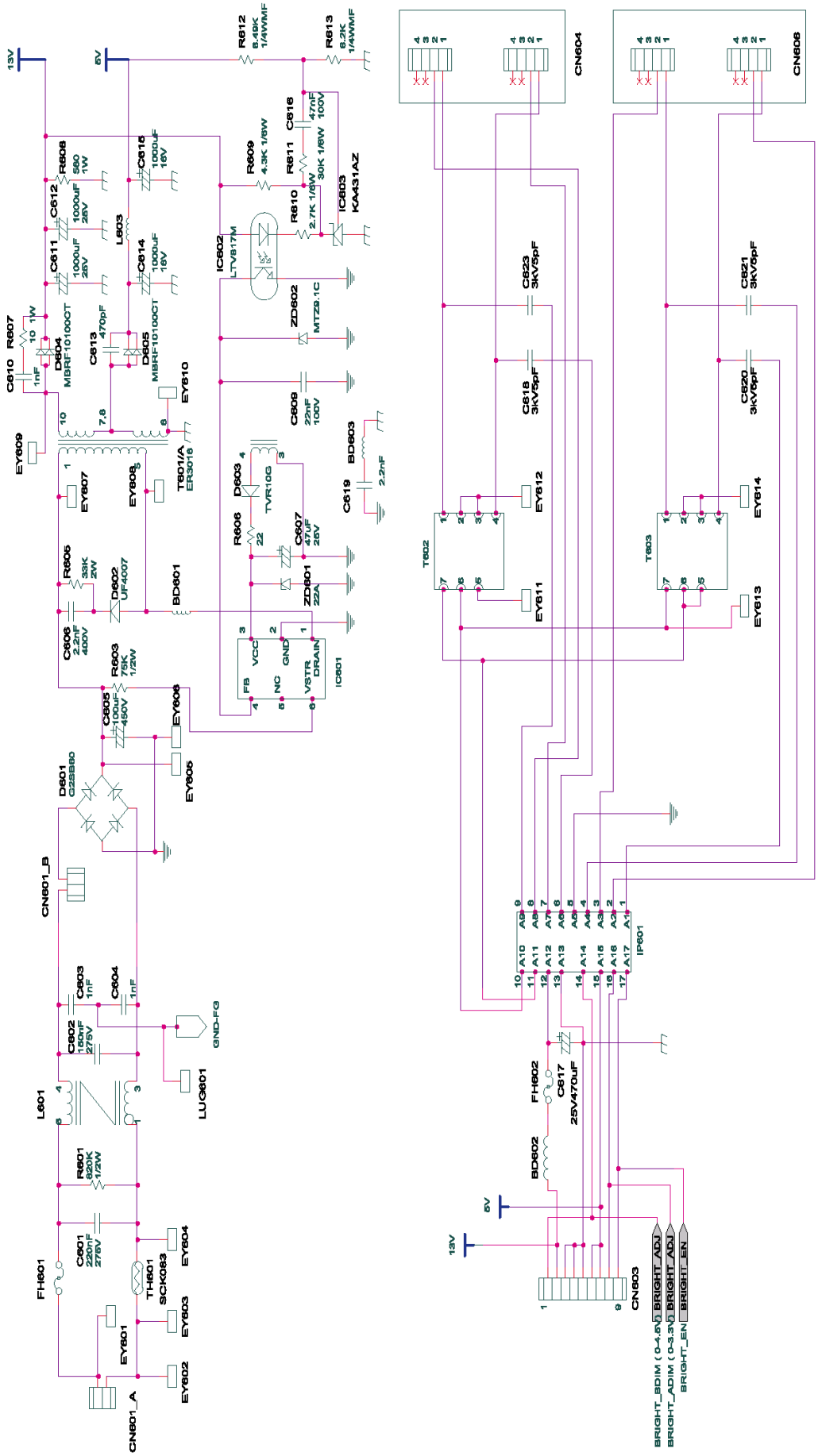
13-2-1 IP 板（供电）



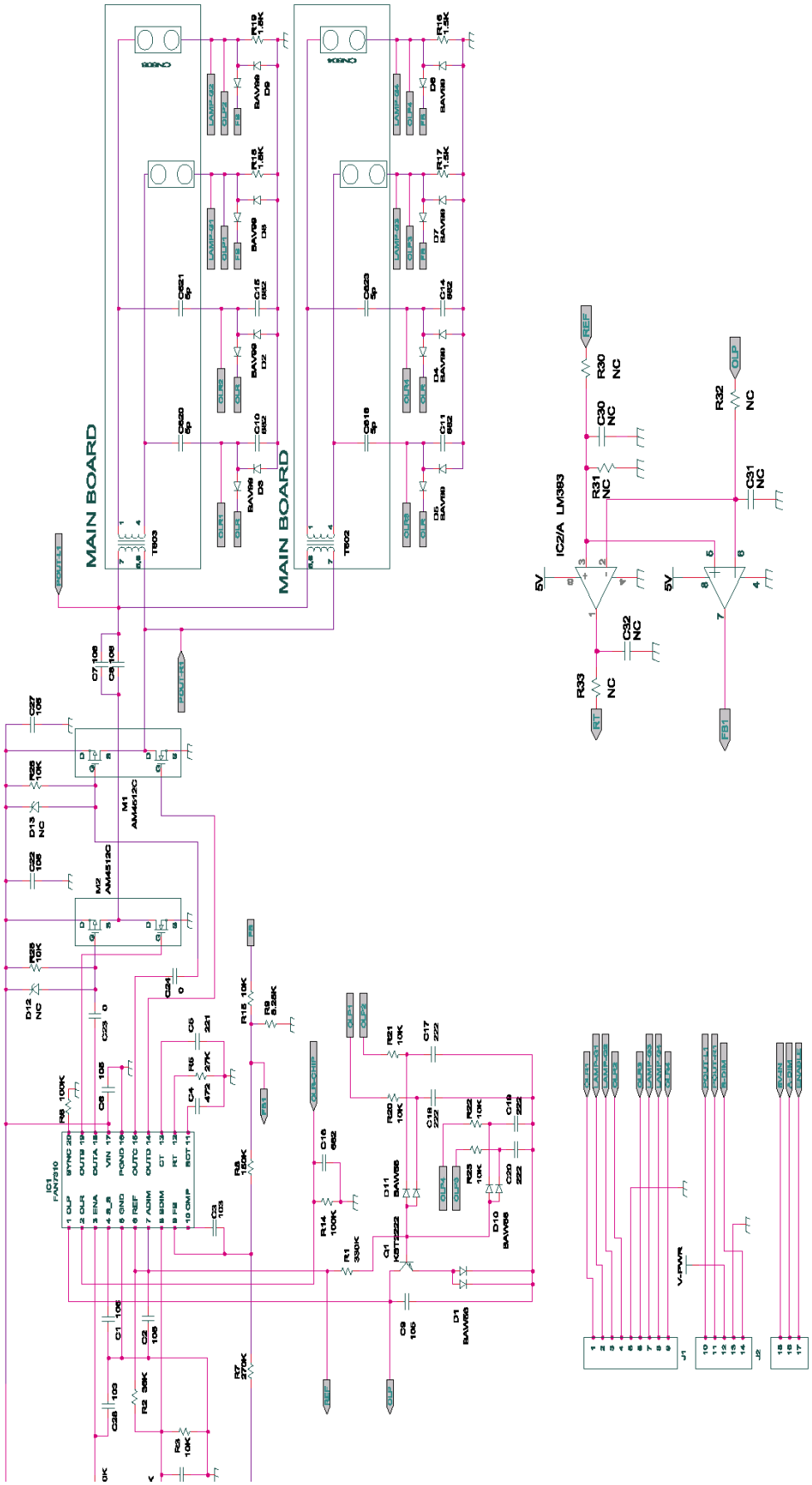
3-2-1 IP 板（变换器）


开机
检查 13V 线
否
检查供电系统
是
FDM0565R 管脚 1 和 2
检查保护功能是否正
常：0.6V~0.8V
否
检查 IC 驱动
检查 MOSFET
是
FDM0565R 的管脚 1 和 2
检查保护功能是否正常：
0.6V~0.8V
否
检查 OVP 和 OLR 电路
是
检查任何暗淡电路
否
检查输出电流
否
检查反馈系统
是
检查其他

13-3 IP 板（供电）原理图



13-4 IP 板（变换器）原理图



备忘录

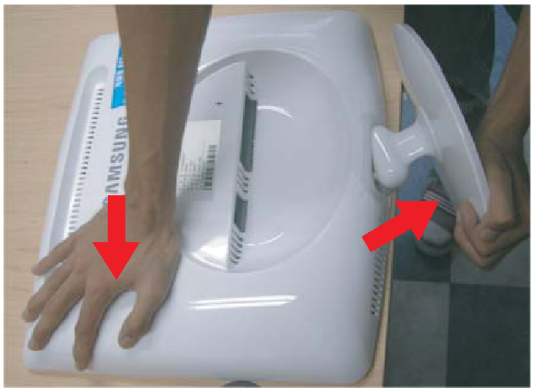
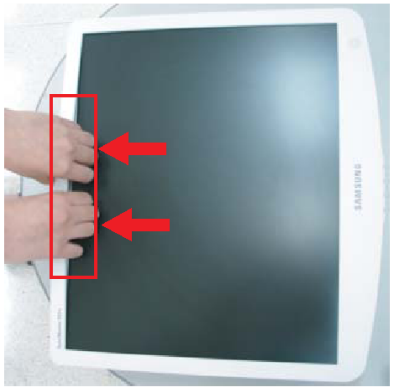
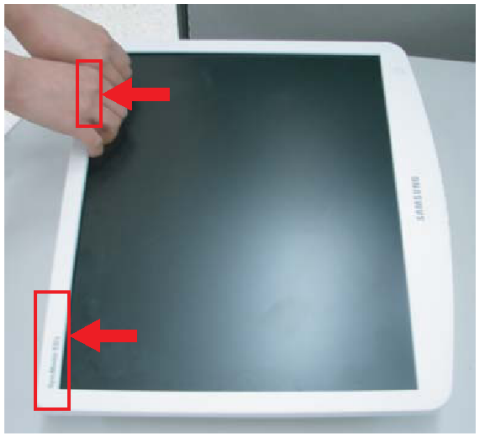
11 拆卸和重新组装

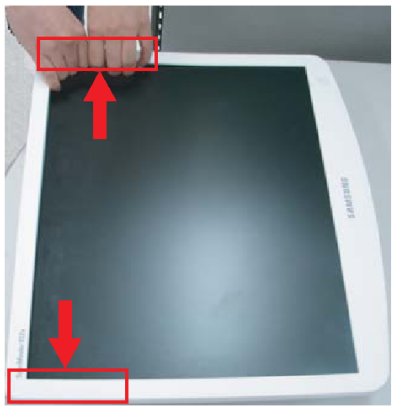
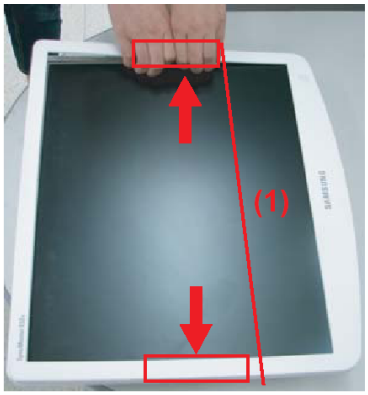
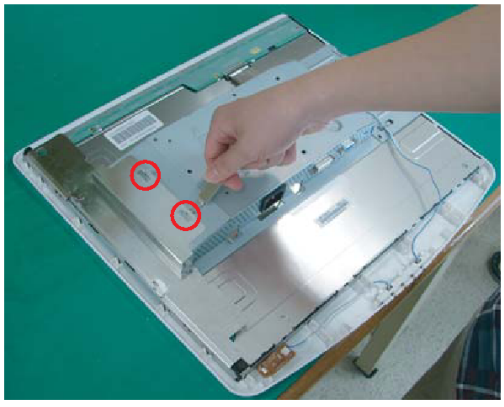
维修手册的这一章叙述 LS17PEA/LS19PEB 液晶显示器的拆卸和重新组装步骤。

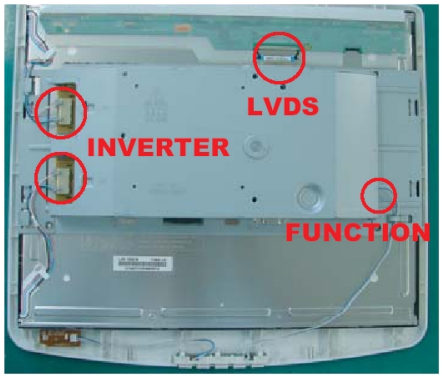
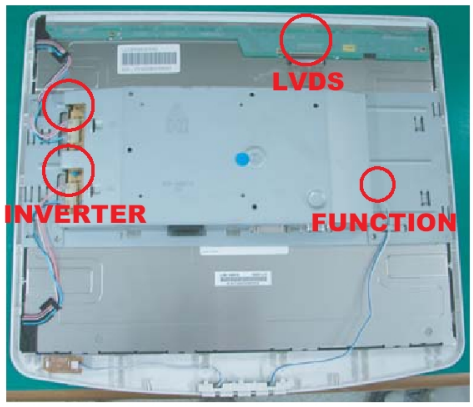
⚠ **警告：**本显示器包含静电敏感器件。处理这些部件时应小心。

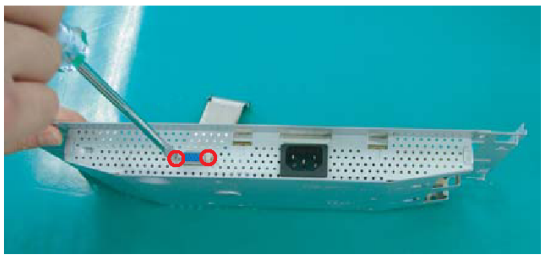
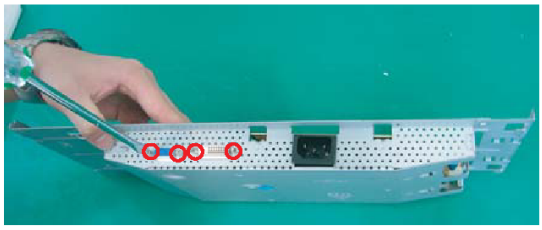
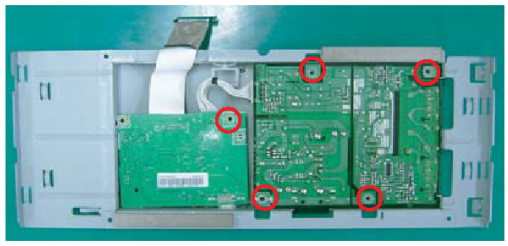
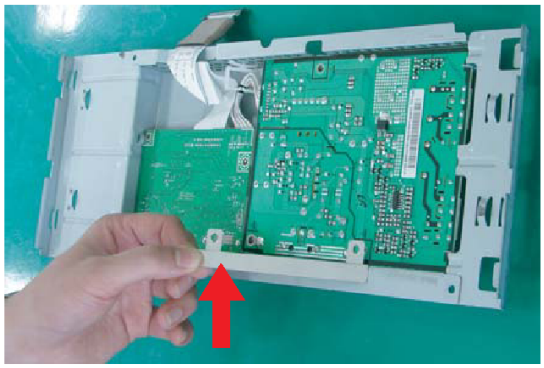
11-1拆卸

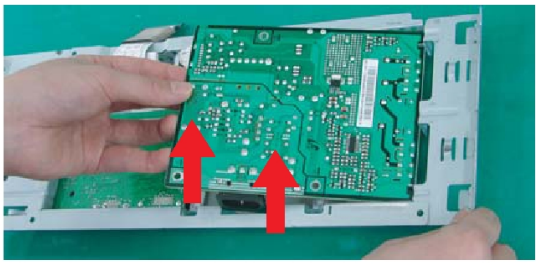
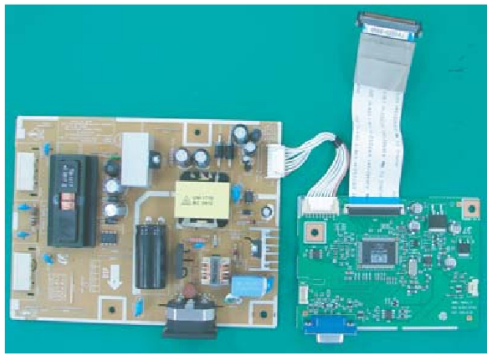
⚠ **小心：1. 在平坦的桌子上拆卸底座。**
2. 在拆卸前，断开显示器电源。

说明	图片说明
1. 在桌子上放置一块软布，并将显示器上部朝下置于软布上。按箭头方向拆除底座。	
2. 旋转显示器，使得前部朝上。如下图所示，从前盖拆除标记的零件。	
3. 如下图所示，从前盖的顶部边缘拆除标记的零件。	

说明	图片说明
4. 如下图所示，从前盖的两侧拆除有标记的零件。	
5. 如下图所示，从前盖拆除标记的零件。 小心：不要提起前盖超过位置(1)，那样可能会损坏前盖。	
6. 旋转显示器，使得显示器背面朝上。将后盖提起并拆除后盖。	
7. 使用拆卸工具拆卸灯护板。 (小心护板)	

说明	图片说明
8. 断开接线。 (LVDS、变换器和功能接线)	17"  19" 
9. 提起液晶显示屏。	
10. 液晶显示屏。	

说明	图片说明
11．拆除螺钉。 (17”=2 个螺钉，19”=4 个螺钉)	17"  19" 
12. 拆除 5 个螺钉。	
13. 提起支撑支架。	

说明	图片说明
14. 提起主印刷电路板和 IB 板。	
15. 主印刷电路板和 IB 板	17" 
	19"

11-2 重新组装

重新组装步骤与拆卸步骤相反。

11-3 底座

11-3-1 安装底座

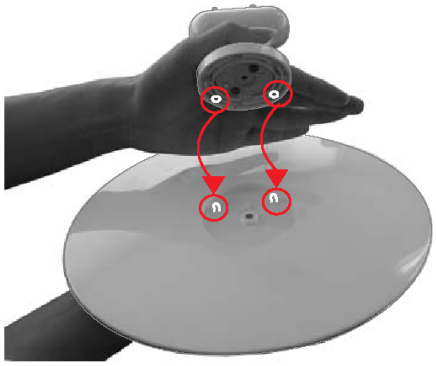
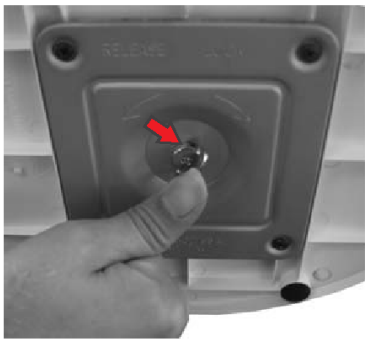
A: 显示器

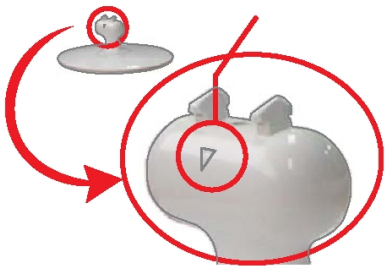
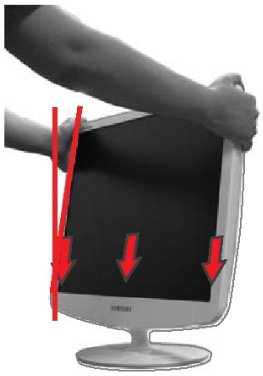
B: 连接销

C: 底座

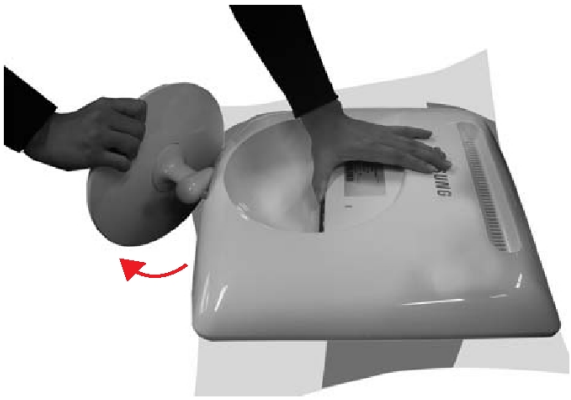
⚠ 小心

当提起或移动显示器时，不要仅抓住底座将显示器上部朝下提起，这样可能会导致显示器掉落，从而导致损坏或人员受伤。

说明	图片说明
1. 将连接销插入底座。	
2. 使螺钉柄向上站立，并通过旋转螺钉将其牢牢拧紧。	
3. 将螺钉柄向朝下放置。	

说明	图片说明
4. 旋转底座，以使连接销上的标记面向前部。	
4. 检查显示器和底座之间的连接部分。	
4. 将显示器向上倾斜 5°到 10°，以便您相比顶部更靠近底座。然后，抓住底座上显示器的顶部零件并向下推顶部零件。 (当向左和向右轻微扭动显示器时，向下推显示器可更加轻松地组装。)	
5. 当正确组装显示器时，在以 90°安装显示器时将看不到连接销后面的光滑凹槽线。	

11-3-2 拆除底座

说明	图片说明
1. 在桌子上放置一块软布或垫子，并将显示器正面朝下放置。	
2. 抓住显示器，并向上倾斜底座。	
3. 抓住显示器，然后向左用力旋转底座并拉出底座。	
4. 使螺钉柄向上站立，并旋转螺钉从而将其松开。	

说明	图片说明
1. 从底座拆除连接销。	

备忘录

6 Electrical Parts List

6-1 LS19PEBSWE/XSF Parts List

Level	Loc. No.	Code No.	Description & Specification	Q'ty	SA/SNA	Remark
		LS19PEBSWE/XSF	932B,SAB3/S19P0-LPE,19,LCD-MO,CHINA			
0.1	M0001	BN90-01055K	ASSY COVER FRONT;LS19PE (932B),HSD,WHITE	1	S.N.A	
..2	T0003	BN96-04142R	ASSY COVER P-FRONT;LS19PE (932B),HSD Pan	1	S.A	
...3	M0081	6003-000282	SCREW-TAPTITE;BH,+,-,B,M3,L8,ZPC(BLK),SW	2	S.A	
...3		BN61-03222A	GUIDE-PANEL;LS17PEW,SECC,T 0.5	1	S.N.A	
...3	CCM1	BN63-02183D	COVER-SHEET;Rhcm,PE Vinyl,T0.05,680mm,20	0.45	S.N.A	
...3	M0112	BN63-02878A	COVER-FRONT;PEBBLE,ABS HB,2.4,WH13,SF050	1	S.N.A	
...3	T0022	BN64-00534A	KNOB CONTROL;PEBBLE,ABS,HB,WH13,SF-0500	1	S.N.A	
...3	T0023	BN64-00597A	KNOB POWER;PEBBLE,ABS HB,WH13,H/GLOSSY	1	S.N.A	
...3	M0130	BN67-00193A	LENS LED;PEBBLE,ABS HB,CLR	1	S.N.A	
...3	M0145	BN96-04363A	ASSY BOARD P-FUCNTION;Pebble,SJ06-01-023	1	S.A	
....4	M0014	BN94-01300M	ASSY PCB MAIN-SEDA,FUCHION PCB;PABBLE*	1	S.N.A	
.....5	M2893	BN39-00774A	LEAD CONNECTOR;Pebble,UL1061#28,UL/CSA,3	1	S.A	
.....5	M2893	BN39-00788A	LEAD CONNECTOR;Pebble,UL1061#28,4PIN,300	1	S.A	
.....5	T0238	BN97-01597B	ASSY AUTO;PEBBLE*	1	S.N.A	
......6	T0313	3404-000299	SWITCH-TACT;12V,50mA,120gf,6x6x4.3mm,SPS	5	S.A	
......6	T0174	BN97-01589M	ASSY SMD;PABBLE	1	S.N.A	
.......7	R110	2007-000122	R-CHIP;1.2Kohm,5%,1/10W,TP,1608	1	S.A	
.......7	R110	2007-000122	R-CHIP;1.2Kohm,5%,1/10W,TP,1608	1	S.A	
.......7	R110	2007-000123	R-CHIP;1.5Kohm,5%,1/10W,TP,1608	1	S.A	
.......7	R110	2007-000123	R-CHIP;1.5Kohm,5%,1/10W,TP,1608	1	S.A	
.......7	R110	2007-001157	R-CHIP;750ohm,5%,1/10W,TP,1608	4	S.A	
.......7	R110	2007-001157	R-CHIP;750ohm,5%,1/10W,TP,1608	1	S.A	
.......7	R110	2007-001157	R-CHIP;750ohm,5%,1/10W,TP,1608	1	S.A	
.......7	R110	2007-001157	R-CHIP;750ohm,5%,1/10W,TP,1608	1	S.A	
.......7	C120	2203-000189	C-CER,CHIP;100nF,+80-20%,25V,Y5V,1608	3	S.A	
.......7	C120	2203-000189	C-CER,CHIP;100nF,+80-20%,25V,Y5V,1608	1	S.A	
.......7	C120	2203-000189	C-CER,CHIP;100nF,+80-20%,25V,Y5V,1608	1	S.A	
.......7	PCB	BN41-00793B	PCB SUB-FUNCTION;Pebble,FR-1,1,1.1,1.6,8	1	S.N.A	
....4		BN94-01310C	ASSY PCB MISC-SEDA,POWER,BN96-;PABBLE	1	S.N.A	
.....5	L0405	0601-001896	LED;SMD,BLUE,1.6x0.8x0.4mm,470,1.6x0.8x0	1	S.A	
.....5	L0405	0601-001896	LED;SMD,BLUE,1.6x0.8x0.4mm,470,1.6x0.8x0	1	S.A	
.....5	L0405	0601-001896	LED;SMD,BLUE,1.6x0.8x0.4mm,470,1.6x0.8x0	1	S.A	
.....5	L0405	0601-001896	LED;SMD,BLUE,1.6x0.8x0.4mm,470,1.6x0.8x0	1	S.A	
.....5	T0313	3404-001207	SWITCH-TACT;12V,50mA,160gf,6.2X6.2,SPST	1	S.A	
.....5	SUBPCB	BN41-00791A	PCB SUB-POWER;Pebble,FR-1,1,1.0,1.6,36*1	1	S.N.A	
0.1	M0002	BN90-01423B	ASSY COVER REAR;LS19PEBSBE,WHITE_AUO	1	S.N.A	
..2	M0013	BN96-06492B	ASSY COVER P-REAR;LS19PE(AUO),,ABS HB,,W	1	S.A	
...3	M0081	6003-001003	SCREW-TAPTITE;BH,+,B,M4,L12,ZPC(BLK),SWR	4	S.N.A	
...3	T0060	BN61-02830A	SPRING ETC;PEBBLE,SK5,1.0,LS19PEB,HRC 45	1	S.N.A	
...3	CCM1	BN63-02183D	COVER-SHEET;Rhcm,PE Vinyl,T0.05,680mm,20	0.45	S.N.A	
...3	M0014	BN63-02880A	COVER-STAND BAR;PEBBLE,ABS HB,T2.6,WH13,	1	S.N.A	
...3		BN63-02883A	COVER-HINGE;PEBBLE,ABS HB,T2.5,WH13,HF-0	1	S.N.A	
...3	M0006	BN63-04083B	COVER-REAR;PEBBLE 19"(AUO),ABS,2.6,HB,WH	1	S.N.A	
...3	T0102	BN73-00132A	RUBBER-CAP;PEBBLE,ELASTOMER,TPE,HB,IV16	1	S.N.A	
0.1	M0112	BN91-01212A	ASSY SHIELD;LS19PEBSW/EDC	1	S.N.A	
..2		BN63-02887A	SHIELD-LAMP;PEBBLE,SPTE,0.3,19INCH	1	S.N.A	
0.1		BN91-01803G	ASSY LCD-ATZ;LS19PEB*	1	S.N.A	

Level	Loc. No.	Code No.	Description & Specification	Q'ty	SA/SNA	Remark
..2	M0215	BN07-00474A	LCD-PANEL;M190EG02 V4,Haydn,6bit Hi-FRC,	1	S.A	
0.1	M0019	BN92-02024R	ASSY LABEL;LS17PEASW/XSF	1	S.N.A	
..2	LABEL	BN68-00761F	MANUAL-02,QSG;Protection Sheet,SyncMaste	1	S.N.A	
0.1	M0113	BN92-02029B	ASSY P/MATERIAL;LS19PEB*,SAA4,PEBBLE	1	S.N.A	
..2	T0524	6902-000241	BAG PE;NITRON/HDPE,T0.5/T0.012,W600,L600	1	S.N.A	
..2	T0376	6902-000379	BAG AIR;LDPE,T0.2,W1000,L1800,TRP,-,--	0.001	S.N.A	
..2	T0003	6902-000604	BAG WRAPPING;LDPE,T0.02,W500,L10000,TRP,	0.85	S.N.A	
..2	M0081	6902-000609	BAG ROLL;LDPE,T0.05,W2400,L1000,TRP,-,-	0.018	S.N.A	
0.1	M0003	BN92-02030Q	ASSY BOX;LS19PEBSBV/XSF	1	S.N.A	
..2	BOX	BN69-01527D	BOX-07,SET;S/M932B(LS19PEB),CB,SY-01,A,Y	1.01	S.N.A	
..2	T0081	BN96-02895A	ASSY MISC P-HANDLE PACKING;ALL MODEL,BN6	1	S.N.A	
...3	M0102	BN66-00008A	LEVER-BOTTOM;ALL MODEL,LDPE,WHITE	1	S.N.A	
...3	M0103	BN66-00007A	LEVER-TOP;ALL MODEL,LDPE,WHITE	1	S.N.A	
0.1	M0045	BN92-02221V	ASSY ACCESSORY;LS19PEBSWV/XSF	1	S.N.A	
..2	M0114	BN39-00244B	CBF SIGNAL;MO15PS,15P/15P,20276-N,1830mm	1	S.A	
..2	M0125	BN39-00246F	CBF SIGNAL-DVI(D);1703FP,24P/24P,20276-D	1	S.A	
..2	M0013	BN96-04150C	ASSY STAND P-BAR;-,PEBBLE17,-,ABS HB,WH1	1	S.A	
...3	M0081	6003-000282	SCREW-TAPTITE;BH,+,-,B,M3,L8,ZPC(BLK),SW	2	S.A	
...3	T0524	6902-000023	BAG PE;LDPE,T0.08,L120,W150,TRP,,,PE MAR	1	S.N.A	
...3		BN61-02783C	STAND-BAR;PEBBLE,ABS HB,SI-212DG-U,WH13,	1	S.N.A	
...3		BN61-02786A	BRACKET-PLATE;PEBBLE,SECC,1.0	1	S.N.A	
..2	M0027	BN96-04154A	ASSY STAND P-BASE;-,PEBBLE19,-,ABS HB,WH	1	S.A	
...3	M0081	6003-000282	SCREW-TAPTITE;BH,+,-,B,M3,L8,ZPC(BLK),SW	4	S.A	
...3	CIS4	BN61-01717A	HOLDER-STAND;BIZET,NI PLT,CH,+,M4,L11(5)	1	S.A	
...3		BN61-02785A	BRACKET-STAND BODY;PEBBLE,SECC,0.8	1	S.N.A	
...3	T0004	BN63-02882A	COVER-STAND BASE;PEBBLE,ABS HB,2.6,WH13,	1	S.N.A	
...3	T0132	BN73-00077A	RUBBER FOOT;MATISSE,BUMPON,##13.5,T2.0,6	4	S.N.A	
...3	T0524	6902-000389	BAG PE;HDPE/NITRON/HDPE,T0.015/T0.5/T0.0	1	S.N.A	
...3	CCM1	BN63-02183C	COVER-SHEET;Rhcm,PE Vinyl,T0.05,200mm,20	0.3	S.N.A	
...3		BN68-01115A	MANUAL FLYER-QSG;COMM,SyncMaster,korean,	1	S.N.A	
..2	M0045	BN96-04558B	ASSY ACCESSORY;LS17PEASW/XSF,-,-,-,-,-	1	S.A	
...3	T0268	3903-000082	CBF-POWER CORD;DT,CN,IP3/YES(A),I(IEC C1	1	S.A	
...3	T0524	6902-000110	BAG PE;LDPE,T0.05,W250,L400,TRP,28,2	1	S.N.A	
...3	M0113	BH68-70455A	CARD-TESTED GOODS;ALL (CHINA),SAMAUNG,CH	1	S.N.A	
...3	ACCESSORY	BH75-00146B	UNIT-10,WARRANTY;CHINA,-,ASS'Y-W/CARD,BH	1	S.N.A	
....4	CIS	BH68-00297E	MANUAL FLYER-10,WARRANTY CARD;SAMSUNG BA	1	S.N.A	
....4	CIS	BH68-00297F	MANUAL FLYER-10,WARRANTY CARD;ENVELOPE,S	1	S.N.A	
...3	M0215	BN96-04304A	ASSY MANUAL P-IB+QSG;932B,732N,-,SyncMas	1	S.N.A	
....4	QSG	BH68-00376L	MANUAL FLYER-06,QSG;LCDQUICK SETUP GUIDE	1	S.N.A	
....4	IB	BN59-00585A	S/W DRIVER-03,IB;932B,732N,W/W,SyncMaste	1	S.N.A	
...3	ACCESSORY	BN68-01237A	MANUAL FLYER-QSG;COMM,W/W(L12),Mojo 100g	1	S.N.A	
...3	ACCESSORY	BN68-01118A	MANUAL-01,TCO99 CARD;COMM,W/W,Mojo 100g,	1	S.N.A	
..2		BN68-01115B	MANUAL FLYER-QSG;COMM,SyncMaster,korean,	1	S.N.A	
0.1	M0017	BN91-01890P	ASSY CHASSIS-ATZ,XSF;LS19PEBSB(W)*/XSF,9	1	S.A	
..2	M0081	6003-000282	SCREW-TAPTITE;BH,+,-,B,M3,L8,ZPC(BLK),SW	1	S.A	
..2	M0081	6003-000282	SCREW-TAPTITE;BH,+,-,B,M3,L8,ZPC(BLK),SW	3	S.A	
..2	M0081	6003-001439	SCREW-TAPTITE;BH,+,-,S,M4,L8,ZPC(WHT),SW	1	S.N.A	
..2	T0562	6046-001013	STAND OFF;M3,L5,Ni PLT,SUM24L,#4-40	4	S.N.A	
..2	M0174	BN44-00124J	IP BOARD;IP-35155A(PV),Pebble,3.0 ~5.0mA	1	S.A	
..2	T0514	BN61-02784A	BRACKET-SUPPORT;PEBBLE,SPTE,0.3	1	S.N.A	

Level	Loc. No.	Code No.	Description & Specification	Q'ty	SA/SNA	Remark
..2		BN94-01559S	ASSY PCB MAIN-ATZ,XSF;LS19PEBSB(W)*/XSF	1	S.N.A	
...3	T0245	0202-001492	SOLDER-WIRE FLUX;HSE-02 LFM48 SR-34 S,-,	0.003	S.N.A	
...3	CN102	3701-001173	CONNECTOR-DVI;24P,3R,FEMALE,ANGLE,AUF	1	S.A	
...3	CN101	3701-001219	CONNECTOR-DSUB;15P,3R,FEMALE,ANGLE,AUF	1	S.A	
...3	T0174	BN97-01876Q	ASSY SMD;LLS19PEB*	1	S.N.A	
....4	SUB05	0202-001477	SOLDER-CREAM;LST309-M,-,D20~45##,96.5Sn/	0.673	S.N.A	
....4	D100	0401-001056	DIODE-SWITCHING;MMBD4148SE,100V,200mA,SO	1	S.A	
....4	D101	0401-001056	DIODE-SWITCHING;MMBD4148SE,100V,200mA,SO	1	S.A	
....4	D102	0401-001056	DIODE-SWITCHING;MMBD4148SE,100V,200mA,SO	1	S.A	
....4	D103	0401-001056	DIODE-SWITCHING;MMBD4148SE,100V,200mA,SO	1	S.A	
....4	D104	0401-001056	DIODE-SWITCHING;MMBD4148SE,100V,200mA,SO	1	S.A	
....4	D105	0401-001056	DIODE-SWITCHING;MMBD4148SE,100V,200mA,SO	1	S.A	
....4	D106	0401-001056	DIODE-SWITCHING;MMBD4148SE,100V,200mA,SO	1	S.A	
....4	D107	0401-001056	DIODE-SWITCHING;MMBD4148SE,100V,200mA,SO	1	S.A	
....4	D108	0401-001056	DIODE-SWITCHING;MMBD4148SE,100V,200mA,SO	1	S.A	
....4	D110	0401-001056	DIODE-SWITCHING;MMBD4148SE,100V,200mA,SO	1	S.A	
....4	D125	0401-001056	DIODE-SWITCHING;MMBD4148SE,100V,200mA,SO	1	S.A	
....4	D126	0401-001056	DIODE-SWITCHING;MMBD4148SE,100V,200mA,SO	1	S.A	
....4	D127	0401-001056	DIODE-SWITCHING;MMBD4148SE,100V,200mA,SO	1	S.A	
....4	D109	0403-001411	DIODE-ZENER;-,5.49-5.73V,200mW,SOD-323,T	1	S.A	
....4	D123	0403-001411	DIODE-ZENER;-,5.49-5.73V,200mW,SOD-323,T	1	S.A	
....4	D124	0403-001411	DIODE-ZENER;-,5.49-5.73V,200mW,SOD-323,T	1	S.A	
....4	D128	0403-001411	DIODE-ZENER;-,5.49-5.73V,200mW,SOD-323,T	1	S.A	
....4	D129	0403-001411	DIODE-ZENER;-,5.49-5.73V,200mW,SOD-323,T	1	S.A	
....4	D220	0403-001411	DIODE-ZENER;-,5.49-5.73V,200mW,SOD-323,T	1	S.A	
....4	D230	0403-001411	DIODE-ZENER;-,5.49-5.73V,200mW,SOD-323,T	1	S.A	
....4	D231	0403-001411	DIODE-ZENER;-,5.49-5.73V,200mW,SOD-323,T	1	S.A	
....4	D221	0406-001061	DIODE-TVS;MMQA5V6T3,5.32/5.6/5.88V,24W,S	1	S.A	
....4	D232	0406-001061	DIODE-TVS;MMQA5V6T3,5.32/5.6/5.88V,24W,S	1	S.A	
....4	ZD200	0406-001061	DIODE-TVS;MMQA5V6T3,5.32/5.6/5.88V,24W,S	1	S.A	
....4	Q201	0501-000445	TR-SMALL SIGNAL;KTC3875S-Y,NPN,150mW,SOT	1	S.A	
....4	Q302	0501-002080	TR-SMALL SIGNAL;2SC2412K,NPN,200mW,SC-59	1	S.A	
....4	Q409	0505-001957	FET-SILICON;NTR2101P,P,-8V,-3.7A,0.052oh	1	S.A	
....4	IC112	1103-000129	IC-EEPROM;24C02,2Kbit,256x8Bit,SOP,8P,5x	1	S.A	
....4	IC112	1103-000129	IC-EEPROM;24C02,2Kbit,256x8Bit,SOP,8P,5x	1	S.A	
....4	IC112	1103-001023	IC-EEPROM;24C08,8Kbit,1Kx8Bit,SOP,8P,5x4	1	S.A	
....4	IC303	1203-001212	IC-VOL. DETECTOR;7029,SOT-89,3P,-,PLASTI	1	S.A	
....4	T0087	1203-003060	IC-POSI.FIXED REG.;AP1084,TO-263,3P,9.97	1	S.A	
....4	T0087	1203-003696	IC-POSI.FIXED REG.;NCP1117DT18T5G,DPAK,3	1	S.A	
....4	IC109	1205-002899	IC-LCD CONTROLLER;GM5726-LF-AA,PQFP,128P	1	S.A	
....4	R110	2007-000070	R-CHIP;0ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000071	R-CHIP;22ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000071	R-CHIP;22ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000071	R-CHIP;22ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000071	R-CHIP;22ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000071	R-CHIP;22ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000071	R-CHIP;22ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000071	R-CHIP;22ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000071	R-CHIP;22ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000071	R-CHIP;22ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000071	R-CHIP;22ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000071	R-CHIP;22ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000071	R-CHIP;22ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A	

Level	Loc. No.	Code No.	Description & Specification	Q'ty	SA/SNA	Remark
....4	R110	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000074	R-CHIP;100ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000078	R-CHIP;1Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000078	R-CHIP;1Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000080	R-CHIP;2Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000080	R-CHIP;2Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000082	R-CHIP;3.3Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000082	R-CHIP;3.3Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000083	R-CHIP;3Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000083	R-CHIP;3Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000083	R-CHIP;3Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000084	R-CHIP;4.7Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000090	R-CHIP;10Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000092	R-CHIP;15Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000092	R-CHIP;15Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000092	R-CHIP;15Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000102	R-CHIP;100Kohm,5%,1/10W,TP,1608	1	S.A	

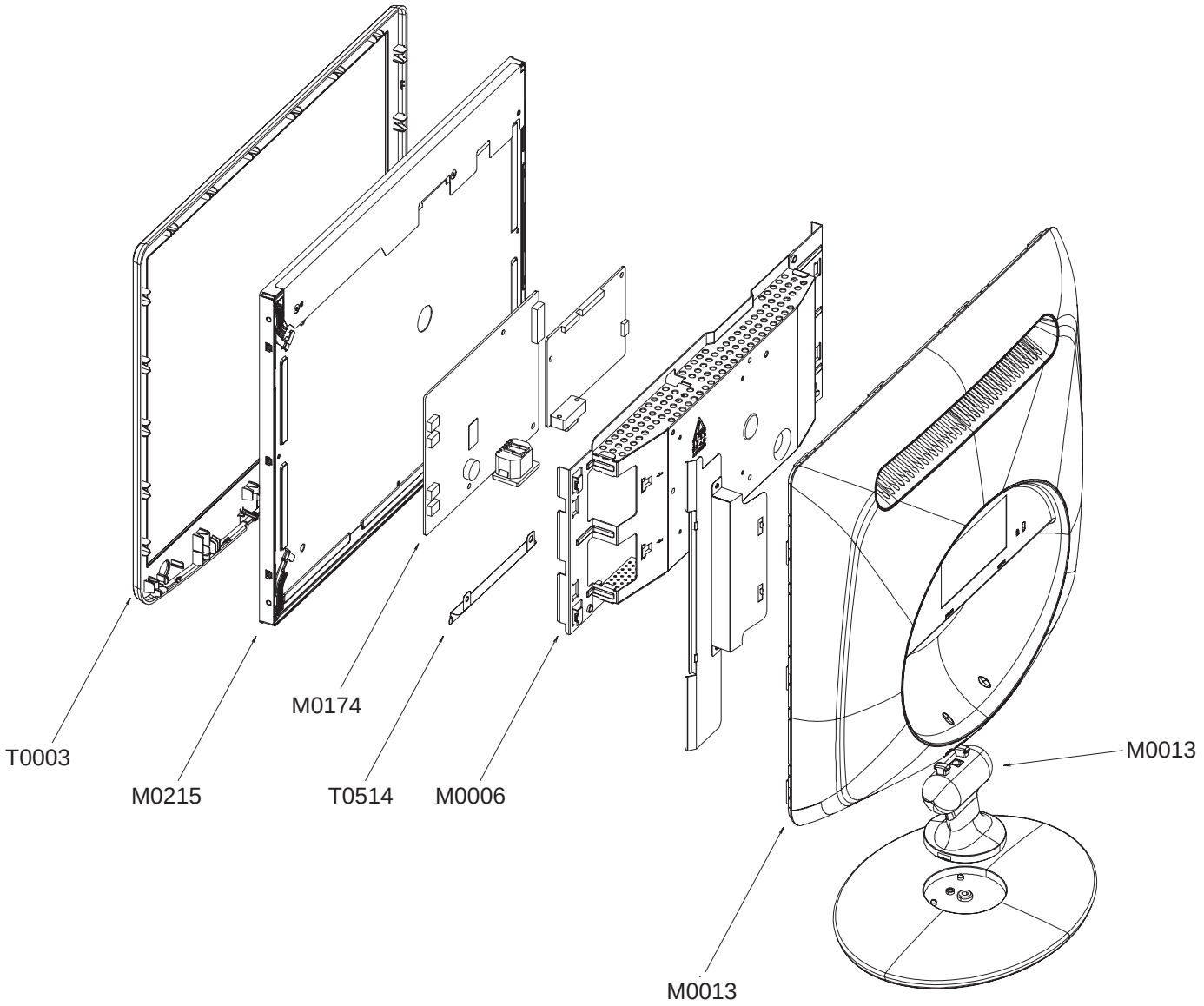
Level	Loc. No.	Code No.	Description & Specification	Q'ty	SA/SNA	Remark
....4	R110	2007-000124	R-CHIP;2.2Kohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-000608	R-CHIP;240ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-001002	R-CHIP;510ohm,5%,1/10W,TP,1608	1	S.A	
....4	R110	2007-001164	R-CHIP;75ohm,1%,1/10W,TP,1608	1	S.A	
....4	R110	2007-001164	R-CHIP;75ohm,1%,1/10W,TP,1608	1	S.A	
....4	R110	2007-001164	R-CHIP;75ohm,1%,1/10W,TP,1608	1	S.A	
....4	C120	2203-000041	C-CER,CHIP;0.01nF,0.25pF,50V,C0G,1608	1	S.A	
....4	C120	2203-000041	C-CER,CHIP;0.01nF,0.25pF,50V,C0G,1608	1	S.A	
....4	C120	2203-000189	C-CER,CHIP;100nF,+80-20%,25V,Y5V,1608	1	S.A	
....4	C120	2203-000257	C-CER,CHIP;10nF,10%,50V,X7R,TP

Level	Loc. No.	Code No.	Description & Specification	Q'ty	SA/SNA	Remark
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005005	C-CER,CHIP;100nF,10%,16V,X7R,1608	1	S.A	
....4	C120	2203-005065	C-CER,CHIP;1000nF,+80-20%,10V,Y5V,1608	1	S.A	
....4	C120	2203-005065	C-CER,CHIP;1000nF,+80-20%,10V,Y5V,1608	1	S.A	
....4	C120	2203-005065	C-CER,CHIP;1000nF,+80-20%,10V,Y5V,1608	1	S.A	
....4	C120	2203-005065	C-CER,CHIP;1000nF,+80-20%,10V,Y5V,1608	1	S.A	
....4	C120	2203-005065	C-CER,CHIP;1000nF,+80-20%,10V,Y5V,1608	1	S.A	
....4	C120	2203-005437	C-CER,CHIP;10000nF,+80-20%,10V,Y5V,3216	1	S.A	
....4	C120	2203-005437	C-CER,CHIP;10000nF,+80-20%,10V,Y5V,3216	1	S.A	
....4	C120	2203-005437	C-CER,CHIP;10000nF,+80-20%,10V,Y5V,3216	1	S.A	
....4	C120	2203-005437	C-CER,CHIP;10000nF,+80-20%,10V,Y5V,3216	1	S.A	
....4	C306	2402-001128	C-AL,SMD;100##F,20%,16V,-,TP,6.3X5.7mm	1	S.A	
....4	C608	2402-001128	C-AL,SMD;100##F,20%,16V,-,TP,6.3X5.7mm	1	S.A	
....4	C609	2402-001128	C-AL,SMD;100##F,20%,16V,-,TP,6.3X5.7mm	1	S.A	
....4	C644	2402-001128	C-AL,SMD;100##F,20%,16V,-,TP,6.3X5.7mm	1	S.A	
....4	X300	2801-003667	CRYSTAL-SMD;14.31818MHz,30ppm,28-AAN,16p	1	S.A	
....4	T0568	3301-001145	BEAD-SMD;60ohm,4516,TP,70ohm/45MHz,82ohm	1	S.N.A	
....4	T0568	3301-001145	BEAD-SMD;60ohm,4516,TP,70ohm/45MHz,82ohm	1	S.N.A	
....4	T0568	3301-001145	BEAD-SMD;60ohm,4516,TP,70ohm/45MHz,82ohm	1	S.N.A	
....4	T0568	3301-001145	BEAD-SMD;60ohm,4516,TP,70ohm/45MHz,82ohm	1	S.N.A	
....4	T0568	3301-001145	BEAD-SMD;60ohm,4516,TP,70ohm/45MHz,82ohm	1	S.N.A	
....4	T0568	3301-001145	BEAD-SMD;60ohm,4516,TP,70ohm/45MHz,82ohm	1	S.N.A	
....4	T0568	3301-001145	BEAD-SMD;60ohm,4516,TP,70ohm/45MHz,82ohm	1	S.N.A	
....4	T0568	3301-001145	BEAD-SMD;60ohm,4516,TP,70ohm/45MHz,82ohm	1	S.N.A	
....4	T0568	3301-001145	BEAD-SMD;60ohm,4516,TP,70ohm/45MHz,82ohm	1	S.N.A	
....4	CN400	3708-001150	CONNECTOR-FPC/FFC/PIC;30P,1mm,SMD-A,SN,Y	1	S.A	
....4	CN330	3711-005503	HEADER-BOARD TO CABLE;BOX,9P,1R,2mm,SMD-	1	S.A	
....4	CN330	3711-005509	HEADER-BOARD TO CABLE;BOX,4P,1R,1.25mm,S	1	S.A	
....4	T0077	BN41-00792A	PCB MAIN;LS19PEB,Silver through,2,MP1.0,	1	S.N.A	
....4	M0018	BN97-01891A	ASSY MICOM;Pebble,LPE19EB,MX25L1005,2007	1	S.N.A	
.....5	IC115	1107-001614	IC-FLASH MEMORY;MX25L1005,1Mbit,1Mx1Bit,	1	S.N.A	
..2	M0006	BN96-04145A	ASSY SHIELD P-COVER;PEBBLE19,SECC,T0.8	1	S.N.A	
...3		BN61-02429D	STUD-PEM;PNB,M2.8,D7,L20,ZPC(SIL),SUM24L	1	S.N.A	
...3	M0107	BN63-02886A	SHIELD-COVER;PEBBLE,SECC,0.8,19INCH	1	S.N.A	
...3	M0114	BP61-01088A	HOLDER-WIRE;SVP-42L6,NYLON	1	S.N.A	
...3	M0131	AA63-01240A	GASKET;FIRENZE,Conductive Fabric,3mm,12m	2	S.N.A	
..2	M0524	BP39-00028A	CONNECT WIRE;BI17,19BS,UL1007#26,9P,80mm	1	S.A	
..2	M0251	BN96-02854R	ASSY CABLE P;Pebble,FLAT CABLE,-,120mm,3	1	S.A	

5 Exploded View and Parts List

-You can search for updated part codes through ITSELF web site.
URL : http://itself. sec. samsung.co.kr

5-1 LS19PEBSWE/XSF Exploded View

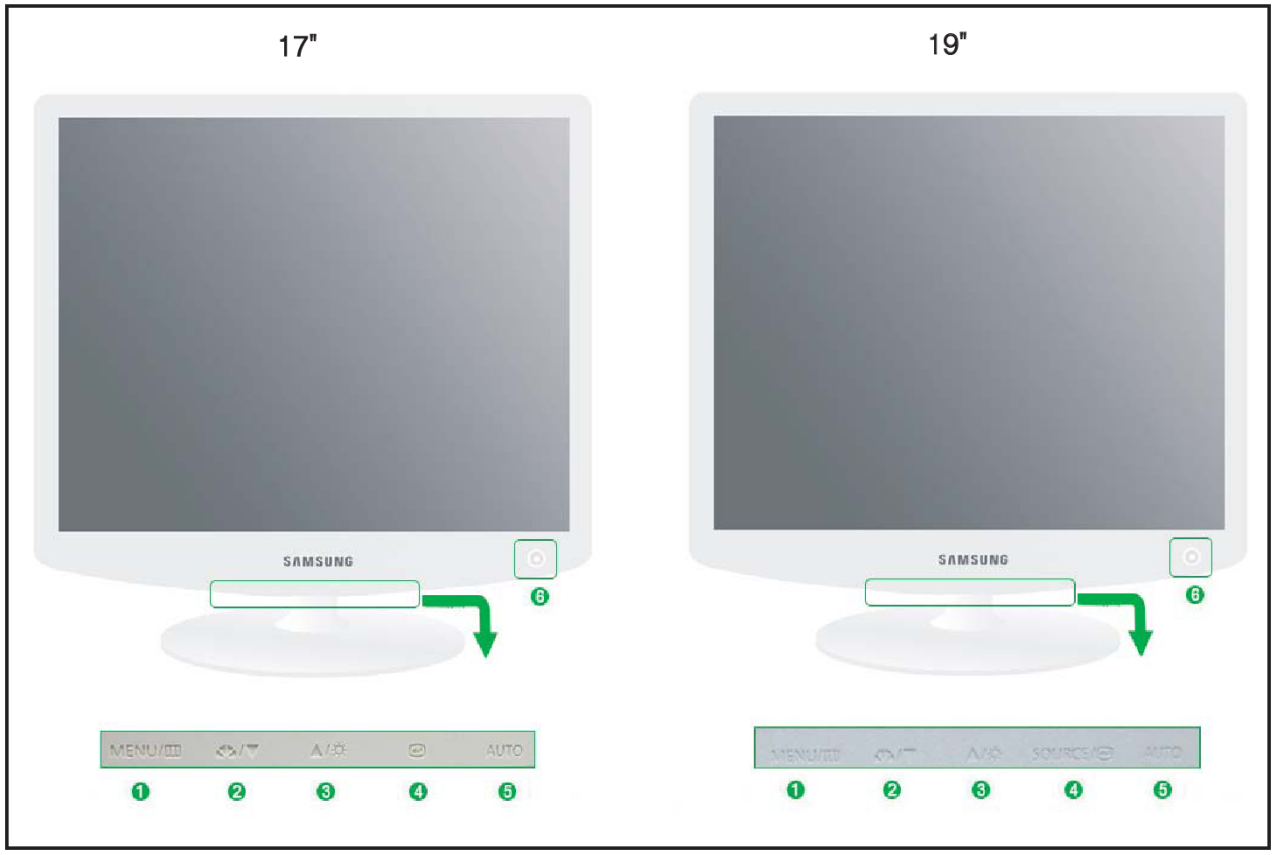


5-2 Parts List

Location	Code.No	Item & Specification	Q'ty	SA/SNA	Remark
T0003	BN96-04142R	ASSY COVER P-FRONT;LS19PE (932B),HSD Pan	1	S.A	
M0215	BN07-00474A	LCD-PANEL;M190EG02 V4,Haydn,6bit Hi-FRC,	1	S.A	
M0174	BN44-00124J	IP BOARD;IP-35155A(PV),Pebble,3.0 ~5.0mA	1	S.A	
T0514	BN61-02784A	BRACKET-SUPPORT;PEBBLE,SPTE,0.3 1	S.N.A		
M0006	BN96-04145A	ASSY SHIELD P-COVER;PEBBLE19,SECC,T0.8	1	S.N.A	
M0013	BN96-06492B	ASSY COVER P-REAR;LS19PE(AUO),,ABS HB,,W	1	S.A	
M0013	BN96-04150C	ASSY STAND P-BAR;-,PEBBLE17,-,ABS HB,WH1	1	S.A	

10 操作说明和安装

10-1 正面



1. 菜单按钮
打开 OSD 菜单。还用于退出 OSD 菜单或返回以前的菜单。

2. MagicBright 按钮
MagicBright 是依据正在观看的图片内容提供最佳观看环境的新功能。当前有六个不同的模式：定制、文本、互联网、游戏、体育运动和电影。各模式有自己的预先录制的亮度值。只需按下 MagicBright 控制按钮，即可轻松选择六个设置之一。
1) 定制
尽管本公司的工程师仔细选择数值，但是预设值可能让您的眼睛不舒适，取决于您的偏好。如果出现这种情况，使用 OSD 菜单调节亮度和对比度。
2) 文本
适用于涉及大量文字的文档或作品。
3) 互联网
适用于文字和图形等组合图像。
4) 游戏
适用于观看游戏等动画。
5) 体育运动
适用于观看体育运动等动画。
6) 电影
适用于观看 DVD 或 VCD 等动画。
7)动态对比度
动态对比度将自动检测输入视频信号的分布情况，并加以调整以创建最佳对比度。

3. 亮度按钮
当屏幕上没有 OSD 时，按下该按钮调节亮度。

2,3.调节按钮
调节菜单中的项目。

4. 确定按钮(17")
启用反白显示的菜单项。

4．确定按钮/来源按钮(19")

启用反白显示的菜单项。

按下“来源”，然后在 OSD 关闭时选择视频信号。（当按下来源按钮改变输入模式时，显示当前模式的屏幕的左上部显示信息-模拟或数字输入信号。）

5.自动按钮

使用该按钮，自动调节。

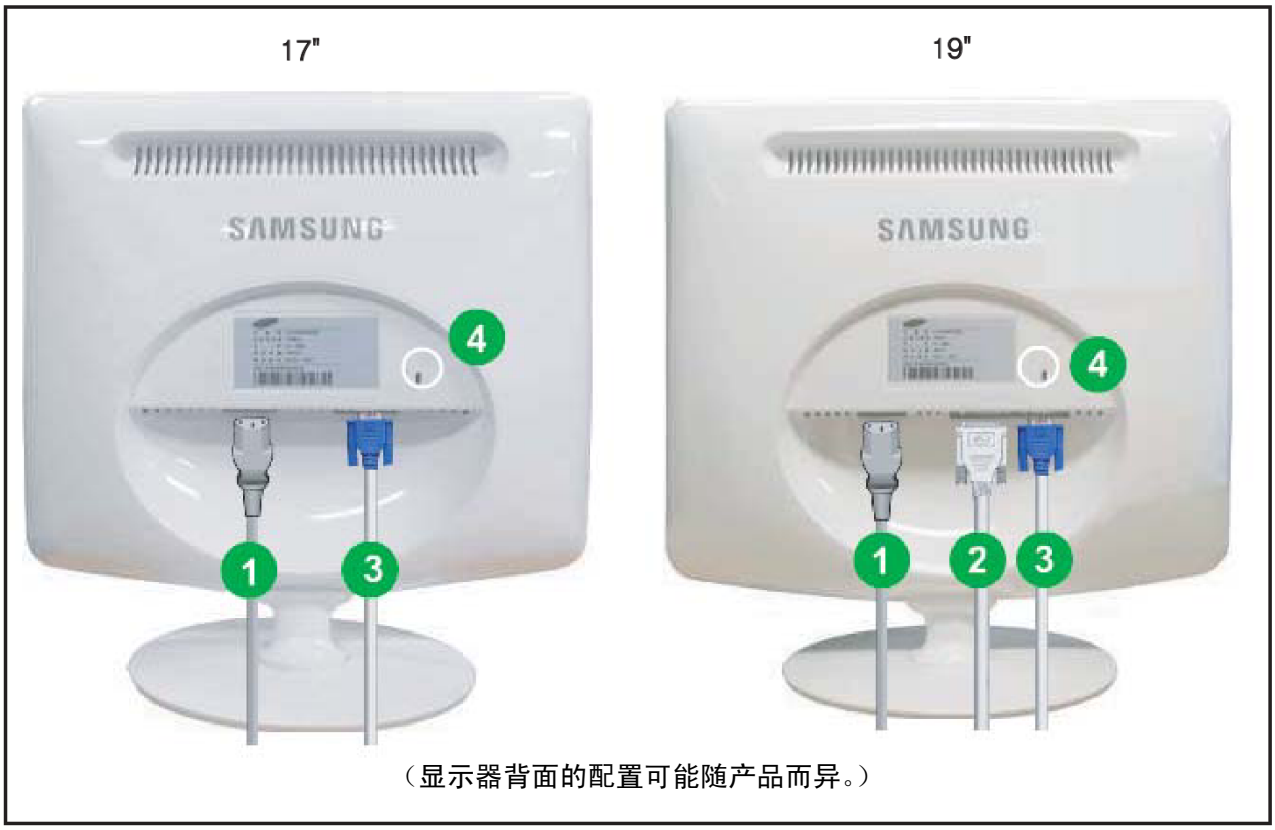
6.电源按钮

使用该按钮打开和关闭显示器。

电源指示灯

在正常运行过程中，本指示灯发出绿光，并且在显示器存储调节内容时，闪烁发出绿光一次。

10-2 后部



（显示器背面的配置可能随产品而异。）

1． 电源端口

将显示器的电源线接到显示器背面的电源端口上。

2． DVI 输入端口

将 DVI 线接到显示器背面上的 DVI 端口上。

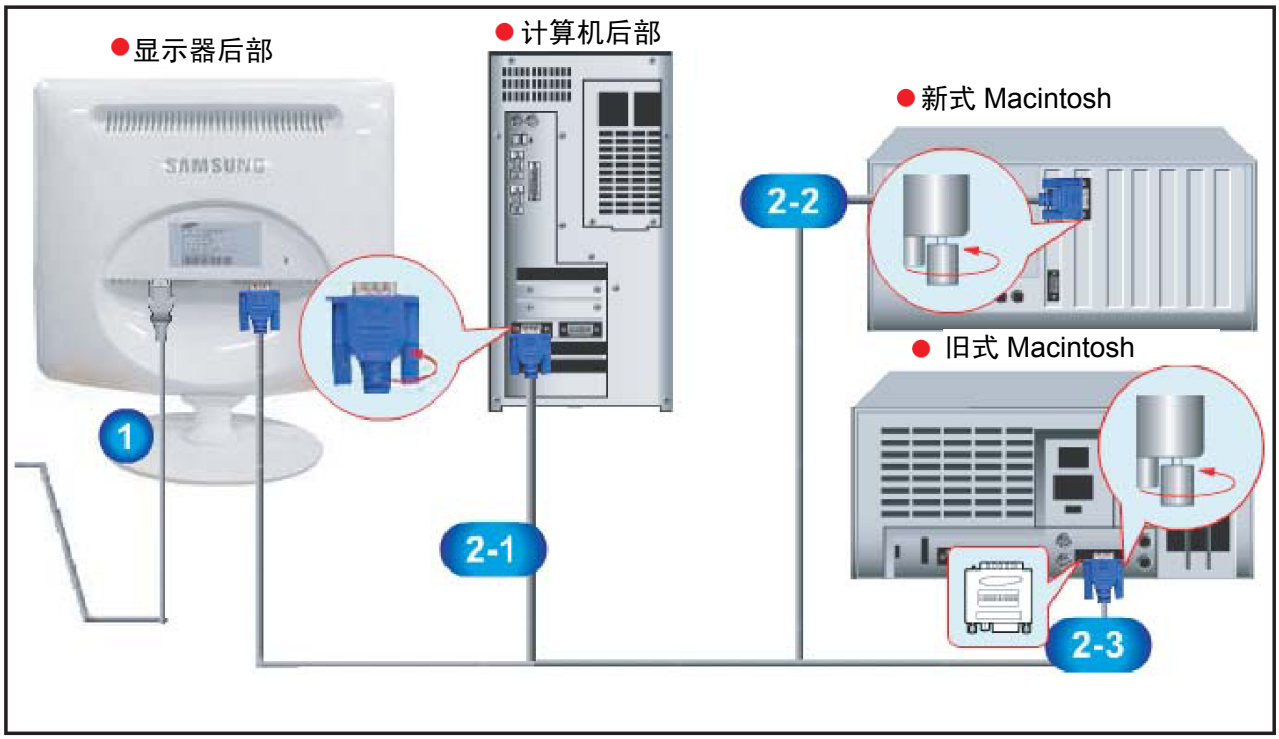
3． RGB 输入端口

将信号线接到显示器背面上的 15 针、D-sub 端口上。

4． Kensington 锁：

Kensington 锁是当在公共场所中使用时用于固定系统的装置。

10-3 连接显示器(17”)



1. 将显示器的电源线接到显示器背面的电源端口上。将显示器的电源线插入旁边的插口上。

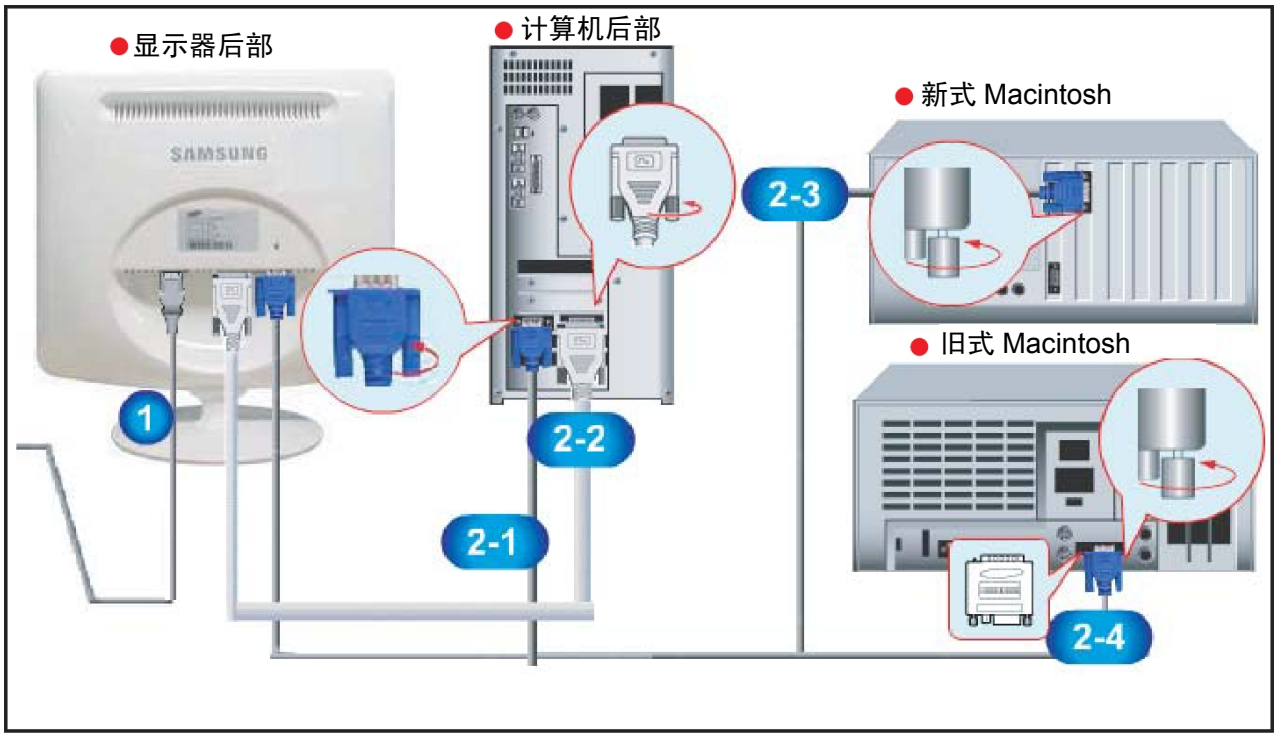
2-1. 使用视频卡上的 D-sub（模拟）连接器。
把信号电缆接到显示器背面的 15 针、D-sub 连接器上。

2-2. 连接到 Macintosh 上。
使用 D-SUB 连接电缆将显示器接到 Macintosh 计算机上。

2-3. 如果是旧式 Macintosh，需要使用特殊 Mac 适配器连接显示器。

3. 打开计算机和显示器。如果显示器显示图像，则安装完成。

10-3 连接显示器(19”)



1. 将显示器的电源线接到显示器背面的电源端口上。将显示器的电源线插入旁边的插口上。

2-1. 使用视频卡上的 D-sub（模拟）连接器。
把信号电缆接到显示器背面的 15 针、D-sub 连接器上。

2-2. 使用视频卡上的 DVI（数字）连接器。
把 DVI 电缆接到显示器背面的 DVI 端口上。

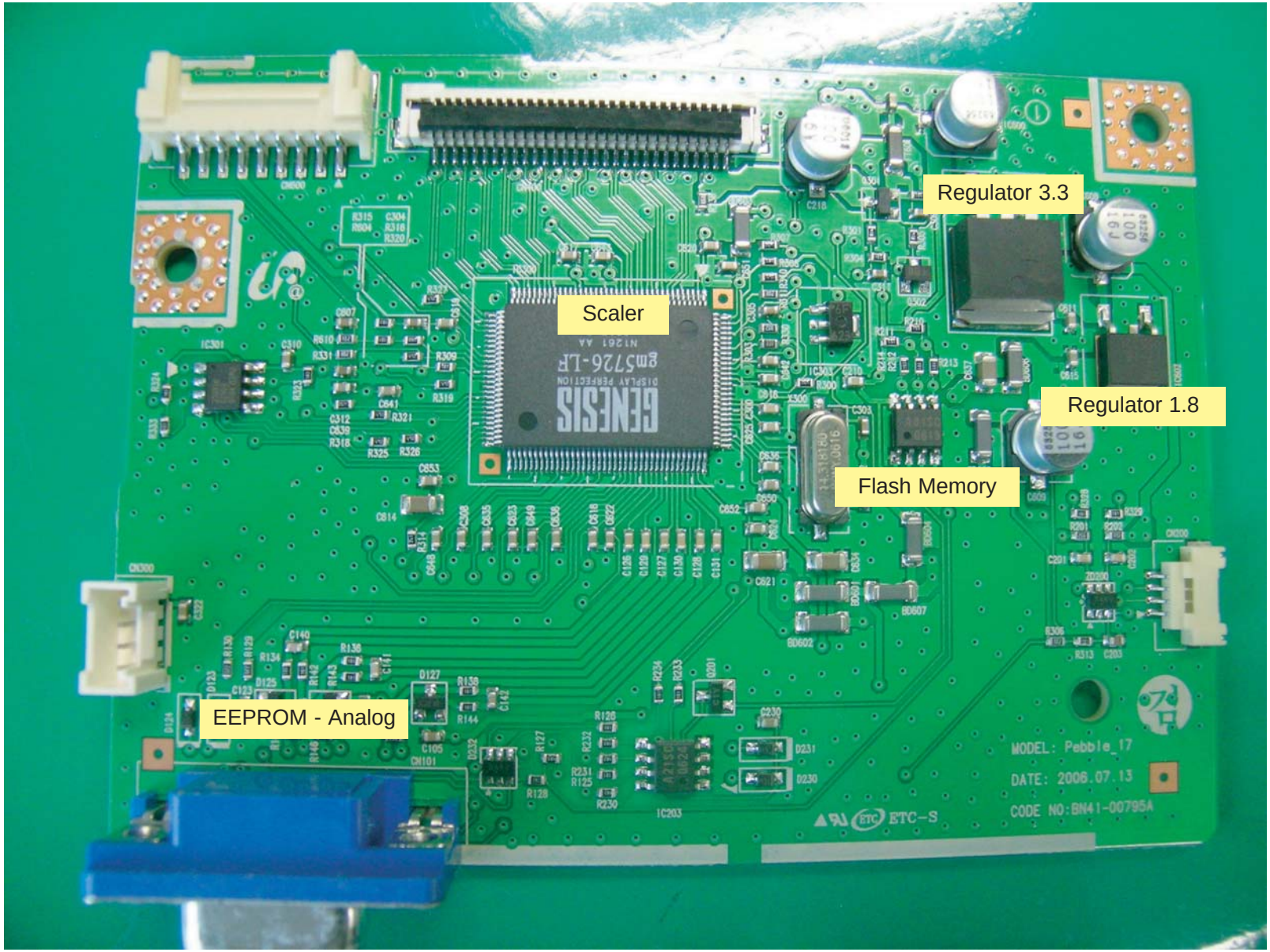
2-3. 连接到 Macintosh 上。
使用 D-SUB 连接电缆将显示器接到 Macintosh 计算机上。

2-4. 如果是旧式 Macintosh，需要使用特殊 Mac 适配器连接显示器。

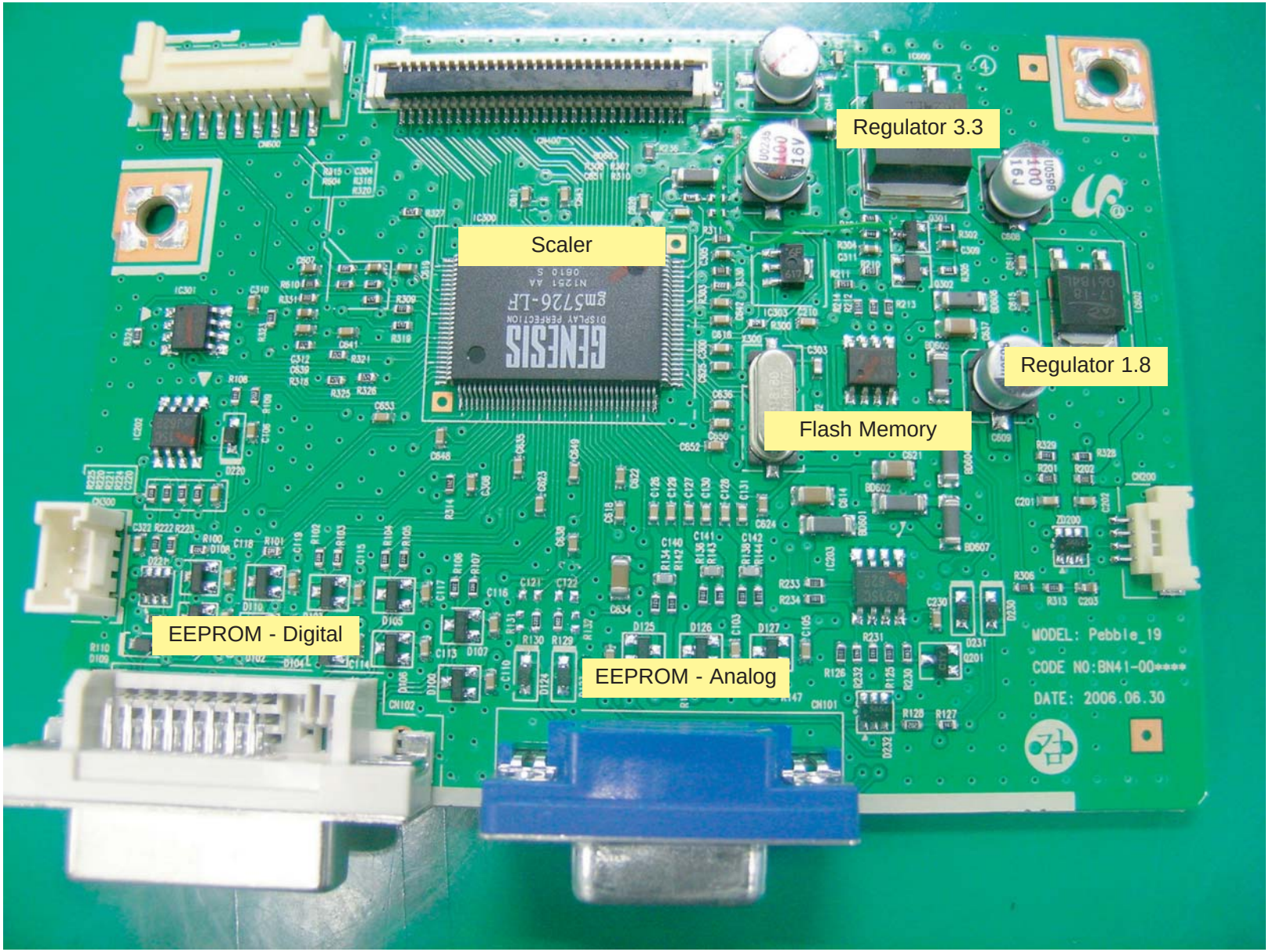
3. 打开计算机和显示器。如果显示器显示图像，则安装完成。

12 PCB Diagram

12-1 Main PCB (LS17PEA, LS19PEA)



12-2 Main PCB (LS19PEB)



1 Precautions

Follow these safety, servicing and ESD precautions to prevent damage and to protect against potential hazards such as electrical shock.

1-1 Safety Precautions

1-1-1 Warnings

1. For continued safety, do not attempt to modify the circuit board.
2. Disconnect the AC power and DC power jack before servicing.

1-1-2 Servicing the LCD Monitor

1. When servicing the LCD Monitor, Disconnect the AC line cord from the AC outlet.
2. It is essential that service technicians have an accurate voltage meter available at all times. Check the calibration of this meter periodically.

1-1-3 Fire and Shock Hazard

Before returning the monitor to the user, perform the following safety checks:

1. Inspect each lead dress to make certain that the leads are not pinched or that hardware is not lodged between the chassis and other metal parts in the monitor.
2. Inspect all protective devices such as nonmetallic control knobs, insulating materials, cabinet backs, adjustment and compartment covers or shields, isolation resistor-capacitor networks, mechanical insulators, etc.
3. Leakage Current Hot Check (Figure 1-1):

   WARNING : Do not use an isolation transformer during this test.

   Use a leakage current tester or a metering system that complies with American National Standards Institute (*ANSI C101.1, Leakage Current for Appliances*), and Underwriters Laboratories (*UL Publication UL1410, 59.7*).

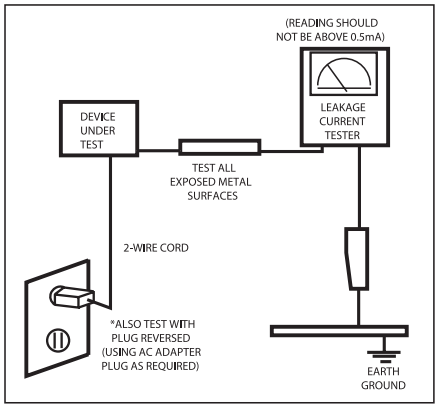


Figure 1-1. Leakage Current Test Circuit

4. With the unit completely reassembled, plug the AC line cord directly into a 120V AC outlet. With the unit's AC switch first in the ON position and then OFF, measure the current between a known earth ground (metal water pipe, conduit, etc.) and all exposed metal parts, including: metal cabinets, screwheads and control shafts. The current measured should not exceed 0.5 milliamp. Reverse the power-plug prongs in the AC outlet and repeat the test.

1-1-4 Product Safety Notices

Some electrical and mechanical parts have special safety-related characteristics which are often not evident from visual inspection. The protection they give may not be obtained by replacing them with components rated for higher voltage, wattage, etc. Parts that have special safety characteristics are identified by ⚠ on schematics and parts lists. A substitute replacement that does not have the same safety characteristics as the recommended replacement part might create shock, fire and/or other hazards. Product safety is under review continuously and new instructions are issued whenever appropriate.

1-2 Servicing Precautions

WARNING: An electrolytic capacitor installed with the wrong polarity might explode.

Caution: Before servicing units covered by this service manual, read and follow the Safety Precautions section of this manual.

Note: If unforeseen circumstances create conflict between the following servicing precautions and any of the safety precautions, always follow the safety precautions.

1-2-1 General Servicing Precautions

1. Always unplug the unit's AC power cord from the AC power source and disconnect the DC Power Jack before attempting to:
   (a) remove or reinstall any component or assembly, (b) disconnect PCB plugs or connectors, (c) connect a test component in parallel with an electrolytic capacitor.
2. Some components are raised above the printed circuit board for safety. An insulation tube or tape is sometimes used. The internal wiring is sometimes clamped to prevent contact with thermally hot components. Reinstall all such elements to their original position.
3. After servicing, always check that the screws, components and wiring have been correctly reinstalled. Make sure that the area around the serviced part has not been damaged.
4. Check the insulation between the blades of the AC plug and accessible conductive parts (examples: metal panels, input terminals and earphone jacks).
5. Insulation Checking Procedure: Disconnect the power cord from the AC source and turn the power switch ON. Connect an insulation resistance meter (500 V) to the blades of the AC plug.

   The insulation resistance between each blade of the AC plug and accessible conductive parts (see above) should be greater than 1 megohm.
6. Always connect a test instrument's ground lead to the instrument chassis ground before connecting the positive lead; always remove the instrument's ground lead last.

1-3 Electrostatically Sensitive Devices (ESD) Precautions

Some semiconductor (solid state) devices can be easily damaged by static electricity. Such components are commonly called Electrostatically Sensitive Devices (ESD). Examples of typical ESD are integrated circuits and some field-effect transistors. The following techniques will reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor components or assemblies, drain the electrostatic charge from your body by touching a known earth ground. Alternatively, wear a discharging wrist-strap device. To avoid a shock hazard, be sure to remove the wrist strap before applying power to the monitor.
2. After removing an ESD-equipped assembly, place it on a conductive surface such as aluminum foil to prevent accumulation of an electrostatic charge.
3. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ESDs.
4. Use only a grounded-tip soldering iron to solder or desolder ESDs.
5. Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ESDs.
6. Do not remove a replacement ESD from its protective package until you are ready to install it. Most replacement ESDs are packaged with leads that are electrically shorted together by conductive foam, aluminum foil or other conductive materials.
7. Immediately before removing the protective material from the leads of a replacement ESD, touch the protective material to the chassis or circuit assembly into which the device will be installed.

   Caution: Be sure no power is applied to the chassis or circuit and observe all other safety precautions.
8. Minimize body motions when handling unpackaged replacement ESDs. Motions such as brushing clothes together, or lifting your foot from a carpeted floor can generate enough static electricity to damage an ESD.

1-4 Installation Precautions

1. For safety reasons, more than two people are required for carrying the product.

2. Keep the power cord away from any heat emitting devices, as a melted covering may cause fire or electric shock.

3. Do not place the product in areas with poor ventilation such as a bookshelf or closet. The increased internal temperature may cause fire.

4. Bend the external antenna cable when connecting it to the product. This is a measure to protect it from being exposed to moisture. Otherwise, it may cause a fire or electric shock.

5. Make sure to turn the power off and unplug the power cord from the outlet before repositioning the product. Also check the antenna cable or the external connectors if they are fully unplugged. Damage to the cord may cause fire or electric shock.

6. Keep the antenna far away from any high-voltage cables and install it firmly. Contact with the highvoltage cable or the antenna falling over may cause fire or electric shock.

7. When installing the product, leave enough space (10cm) between the product and the wall for ventilation purposes.
   A rise in temperature within the product may cause fire.

Memo

2 Product Specifications

2-1 Fashion Feature

-. Minimalism Design Something New

-. Boltless Model (Clean Cut & Soft Surface)

-. New Ball Hinge

-. Color Variation. White, Black

2-2 LS17PEA Specifications

Item	Description
LCD Panel	TFT-LCD panel, RGB vertical stripe, normally black transmissive, 17-Inch viewable, 0.264 (H) x 0.264 (V) mm pixel pitch
Scanning Frequency	Horizontal : 31 kHz ~ 81 kHz (Automatic) Vertical : 56 Hz ~ 75 Hz (UXGA : 60 Hz)
Display Colors	16.7 Million colors
Maximum Resolution	Horizontal : 1280 Pixels Vertical : 1024 Pixels
Input Signal	Analog
Input Sync Signal	Seperate H/V sync, Composite H/V, Sync-on-Green, Automatic synchroniza tion whitout external swith of sync type Level : TTL level
Maximum Pixel Clock rate	135 MHz
Active Display Horizontal/Vertical	337(H) x 270(W) mm
AC power voltage & Frequency	AC 90 ~ 264 Volts, 60/50 Hz
Power Consumption	34W (Max)
Dimensions Set (W x D x H)	376.0 x 177.0 x 380.0 mm
Weight (Set/Package)	3.2kg / 4.3kg
Environmental Considerations	Operating Temperature : 0˚F ~ 122˚F (0℃ ~ 50℃) Operating Humidity : 20% ~ 90% Storage temperature : -4˚F ~ 149˚F (-20℃ ~ 65℃) Storage Humidity : 5% ~ 90%
- Designs and specifications are subject to change without prior notice.	

2-3 LS19PEB Specifications

Item	Description
LCD Panel	TFT-LCD panel, RGB vertical stripe, normally black transmissive, 19-Inch viewable, 0.294 (H) x 0.294 (V) mm pixel pitch
Scanning Frequency	Horizontal : 31 kHz ~ 81 kHz (Automatic) Vertical : 56 Hz ~ 75 Hz (UXGA : 60 Hz)
Display Colors	16.7 Million colors
Maximum Resolution	Horizontal : 1280 Pixels Vertical : 1024 Pixels
Input Signal	Analog / Digital
Input Sync Signal	Seperate H/V sync, Composite H/V, Sync-on-Green, Automatic synchroniza tion whitout external swith of sync type Level : TTL level
Maximum Pixel Clock rate	135 MHz
Active Display Horizontal/Vertical	376.3(H) x 301.05(W) mm
AC power voltage & Frequency	AC 90 ~ 264 Volts, 60/50 Hz
Power Consumption	38W (Max)
Dimensions Set (W x D x H)	418.0 x 199.0 x 418.0 mm
Weight (Set/Package)	4.0kg / 5.3kg
Environmental Considerations	Operating Temperature : 0˚F ~ 122˚F (0℃ ~ 50℃) Operating Humidity : 20% ~ 90% Storage temperature : -4˚F ~ 149˚F (-20℃ ~ 65℃) Storage Humidity : 5% ~ 90%
- Designs and specifications are subject to change without prior notice.	

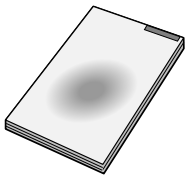
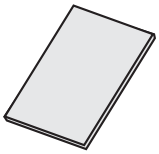
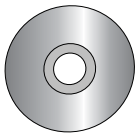
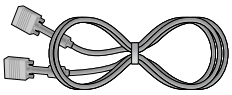
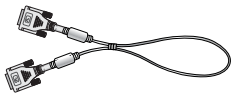
2-4 LS19PEA Specifications

Item	Description
LCD Panel	TFT-LCD panel, RGB vertical stripe, normally black transmissive, 19-Inch viewable, 0.294 (H) x 0.294 (V) mm pixel pitch
Scanning Frequency	Horizontal : 31 kHz ~ 81 kHz (Automatic) Vertical : 56 Hz ~ 75 Hz (UXGA : 60 Hz)
Display Colors	16.7 Million colors
Maximum Resolution	Horizontal : 1280 Pixels Vertical : 1024 Pixels
Input Signal	Analog
Input Sync Signal	Seperate H/V sync, Composite H/V, Sync-on-Green, Automatic synchroniza tion whitout external swith of sync type Level : TTL level
Maximum Pixel Clock rate	135 MHz
Active Display Horizontal/Vertical	376.3(H) x 301.05(W) mm
AC power voltage & Frequency	AC 90 ~ 264 Volts, 60/50 Hz
Power Consumption	38W (Max)
Dimensions Set (W x D x H)	418.0 x 199.0 x 418.0 mm
Weight (Set/Package)	4.0kg / 5.3kg
Environmental Considerations	Operating Temperature : 0˚F ~ 122˚F (0℃ ~ 50℃) Operating Humidity : 20% ~ 90% Storage temperature : -4˚F ~ 149˚F (-20℃ ~ 65℃) Storage Humidity : 5% ~ 90%
- Designs and specifications are subject to change without prior notice.	

2-5 Spec Comparison

Model	BI17BS / 19BS	LS17PEA / LS19PEA / LS19PEB
Design		
Frequency **Horizontal** **Vertical** **Display Color**	 30 ~ 81 kHz 60 ~ 75 Hz 16,2M colors	 30 ~ 81 kHz 60 ~ 75 Hz 16,7M colors
PC Resolution **Maximum mode**	 1280 x 1024 / 60 Hz	 1280 x 1024 / 60 Hz
Input Signal **Sync Signal** **Video Signal**	 H/V Separate, TTL, P. or N. 0.7 Vp-p @ 75ohm	 H/V Separate, TTL, P. or N. 0.7 Vp-p @ 75ohm
Power Consumption **Normal** **Power Saving**	 34W / 38W < 1W	 34W / 38W < 1W
Response Time	8ms	17" : 5ms 19" : 5ms
Anion Option	None	None
Magic Color	Support	Support (Deleted Magic Zone)

2-6 Option Specification

Item	Item Name	CODE.NO	Remark
	Quick Setup Guide	BN68-01002C	
	Warranty Card (Not available in all locations)	AA68-00371C	
	User's Guide, Monitor Driver, Natural Color software, MagicTune™ software	LS17PEA, LS19PEB: BN59-00585A LS19PEA: BN59-00585L	
	D-Sub(15 Pin) Cable	BN39-00244B	
	Power Cord	3903-000042	
	DVI Cable	BN39-00246F	Sold separately

Memo

14 Reference Infomation

14-1 Technical Terms

-TFT-LCD
(Thin film Transistor Liquid Crystal Display)
ADC(Analog to Digital Converter)
This is a circuit that converts from analog signal to digital signals.

-PLL(Phase Locked Loop)
During progressing ADC, Device makes clock synchronizing HSYNC with Video clock

-Inverter
Device that supplies Power to LCD panel lamp. This device generates about 1,500~2,000V.

AC Adapter
Device that converts AC(90V~240V) to DC(+12V or 14V)

SMPS(Switching Mode Power Supply)
Switching Mode Power supply. This design technology is used to step up/down the input power by switching on/off

-FRC(Frame Rate Controller)
Technology that changes the number of frames displayed on screen per second.
TFT-LCD panel requires 60 frames per second. This technology is needed to convert input image to 60 frames per second regardless input frame quantity.

-Image Scaler
Technology that converts an input resolution to another resolution.(ex. 640* 480 to 1024*768)

-Auto Configuration(Auto adjustment)
This is an algorithm to adjust monitor to optimum condition by pushing one key.

-OSD(On Screen Display)
Customers can easily control the screen settings using the OSD.

-FINE
The "Fine" adjustment is used to adjust visibility by controlling phase difference.

-COARSE
This adjustment adjusts the display by tuning Video clock and PLL clock.

-DVI (Digital Visual Interface)
This provides a high speed digital connection for visual data types that is display technology independent. This interface is primarily forcused at providing a connection between a computer and its display device.

-L.V.D.S.(Low Voltage Differential Signaling)
A kind of transmission method for Digital.It can be used from Main PBA to Panel.

-T.M.D.S
(Transition minimized Differential Signaling)
a kind of transmission method for Digital.
It can be used from Video card to Main PBA.

-DDC(Display data channel)
It is a communication method between Host Computer and related equipment.
It enables Plug and Play between PC and Monitor.

-EDID
Extended Display Identification Data PC can recognize monitor information such as Product data, Product name,Display mode,Serial number and Signal source, etc Data is recognised via DDC Line linking PC and Monitor.

-Dot Pitch
The image on a monitor is composed of red, green and blue dots. The closer the dots, the higher the resolution. The distance between two dots of the same color is called the 'Dot Pitch'. Unit: mm

-Vertical Frequency
The screen must be redrawn several times per second in order to create and display an image for the

user. The frequency of this repetition per second is called Vertical Frequency or Refresh Rate. Unit: Hz
Example: If the same light repeats itself 60 times per second, this is regarded as 60 Hz.

-Horizontal Frequency
The time to scan one line connecting the right edge to the left edge of the screen horizontally is called Horizontal Cycle. The inverse number of the Horizontal Cycle is called Horizontal Frequency. Unit: kHz

-Interlace and Non-Interlace Methods
Showing the horizontal lines of the screen from the top to the bottom in order is called the Non-Interlace method while showing odd lines and then even lines in turn is called the Interlace method. The Non-Interlace method is used for the majority of monitors to ensure a clear image. The Interlace method is the same as that used in TVs.

-**Plug & Play**
This is a function that provides the best quality screen for the user by allowing the computer and the monitor to exchange information automatically. This monitor follows the international standard VESA DDC for the Plug & Play function.

-Resolution
The number of horizontal and vertical dots used to compose the screen image is called 'resolution'. This number shows the accuracy of the display. High resolution is good for performing multiple tasks as more image information can be shown on the screen.

Example: If the resolution is 1280 x 1024 , this means the screen is composed of 1280 horizontal dots (horizontal resolution) and 1024 vertical lines (vertical resolution).

14-2 Pin Assignments

Sync Type / Pin No.	15-Pin D-Sub Signal Cable Connector		
	Separate	Composite	Sync-on-green
1	Red	Red	Red
2	Green	Green	Green + H/V Sync.
3	Blue	Blue	Blue
4	GND	GND	GND
5	DDC Return (GND)	DDC Return (GND)	DDC Return (GND)
6	GND-R	GND-R	GND-R
7	GND-G	GND-G	GND-G
8	GND-B	GND-B	GND-B
9	DDC Power Input (+5V)	DDC Power Input (+5V)	DDC Power Input (+5V)
10	Self Raster	Self Raster	Self Raster
11	GND	GND	GND
12	Bi-Dr Data (SDA)	Bi-Dr Data (SDA)	Bi-Dr Data (SDA)
13	H-Sync.	H/V-Sync.	Not Used
14	V-Sync.	Not Used	Not Used
15	DDC Clock (SCL)	DDC Clock (SCL)	DDC Clock (SCL)

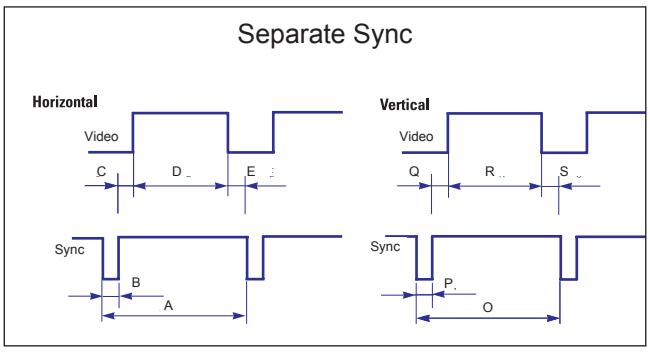
Sync Type / Pin No.	24P DVI-D		
1	Rx2-	13	No Connection
2	Rx2+	14	+5V_M
3	GND	15	Self Raster
4	No Connection	16	+5V_M
5	No Connection	17	Rx0-
6	DDC Clock (SCL)	18	Rx0+
7	DDC Data (SDA)	19	NC
8	NC	20	No Connection
9	Rx1-	21	No Connection
10	Rx1+	22	NC
11	NC	23	RxC+
12	No Connection	24	RxC-

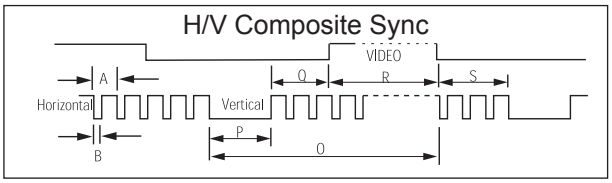
14-3 Timing Chart

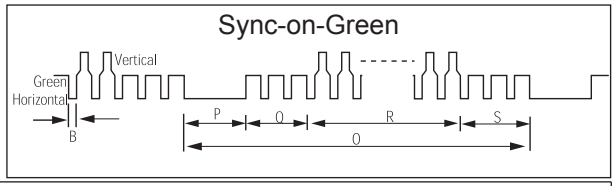
This section of the service manual describes the timing that the computer industry recognizes as standard for computer-generated video signals.

Table 14-1 Timing Chart

Mode / Timing	IBM		VESA						
	VGA2/ 70 Hz 720 x 400	VGA3/ 60 Hz 640 x 480	640/75 Hz 640x480	800/60 Hz 800x600	800/75 Hz 800x600	1024/60 Hz 1024x768	1024/75 Hz 1024x768	1280/60 Hz 1280x1024	1280/75 Hz 1280x1024
fH (kHz)	31.469	31.469	37.500	37.879	46.875	48.363	60.023	63.981	79.975
A µsec	31.777	31.778	26.667	26.400	21.333	20.677	16.660	11.852	12.504
B µsec	3.813	3.813	2.032	3.200	1.616	2.092	1.219	1.037	1.067
C µsec	1.589	1.589	3.810	2.200	3.232	2.462	2.235	2.296	1.837
D µsec	26.058	26.058	20.317	20.000	16.162	15.754	13.003	9.259	9.481
E µsec	0.318	0.318	0.508	0.000	0.323	0.369	0.203	0.000	0.119
fV (Hz)	70.087	59.940	75.000	60.317	75.000	60.004	75.029	60.020	75.025
O msec	14.268	16.683	13.333	16.579	13.333	16.666	13.328	16.005	13.329
P msec	0.064	0.064	0.080	0.106	0.064	0.124	0.050	0.047	0.038
Q msec	0.858	0.794	0.427	0.607	0.448	0.600	0.466	0.594	0.475
R msec	13.155	15.761	12.800	15.840	12.800	15.880	12.795	15.630	12.804
S msec	0.191	0.064	0.027	0.0261	0.021	0.062	0.017	0.016	0.013
Clock Freq. (MHz)	28.322	26.175	31.500	40.000	49.500	75.000	78.750	108.000	135.000
Polarity H.Sync	Negative	Negative	Negative	Positive	Positive	Negative	Positive	Positive	Positive
V.Sync	Positive	Negative	Negative	Positive	Positive	Negative	Positive	Positive	Positive
Remark	Separate	Separate	Separate	Separate	Separate	Separate	Separate	Separate	Separate







A : Line time total B : Horizontal sync width
P : Vertical sync width

C : Back porch D : Active time
R : Active time

O : Frame time total

Q : Back porch

14-4 Preset Timing Modes

-If the signal transferred from the computer is the same as the following Preset Timing Modes, the screen will be adjusted automatically. However, if the signal differs, the screen may go blank while the power LED is on. Refer to the video card manual and adjust the screen as follows.

Table 1. Preset Timing

Display Mode	Horizontal Frequency (kHz)	Vertical Frequency (Hz)	Pixel Clock (MHz)	Sync Polarity (H/V)
MAC, 640 x 480	35.000	66.667	30.240	-/-
MAC, 832 x 624	49.726	74.551	57.284	-/-
MAC,1152 x870	68.681	75.062	100.000	-/-
IBM, 640 x 350	31.469	70.086	25.175	+/-
IBM, 640 x 480	31.469	59.940	25.175	-/-
IBM, 720 x 400	31.469	70.087	28.322	-/+
VESA, 640 x 480	37.500	75.000	31.500	-/-
VESA, 640 x 480	37.861	72.809	31.500	-/-
VESA, 800 x 600	35.156	56.250	36.000	+,-/+,-
VESA, 800 x 600	37.879	60.317	40.000	+/+
VESA, 800 x 600	46.875	75.000	49.500	+/+
VESA, 800 x 600	48.077	72.188	50.000	+/+
VESA, 1024 x 768	48.363	60.004	65.000	-/-
VESA, 1024 x 768	56.476	70.069	75.000	-/-
VESA, 1024 x 768	60.023	75.029	78.750	+/+
VESA, 1152 x 864	67.500	75.000	108.00	+/+
VESA 1280 x 960	60.000	60.000	108.00	+/+
VESA, 1280 x 1024	63.981	60.020	108.00	+/+
VESA, 1280 x 1024	79.976	75.025	135.00	+/+

Horizontal Frequency
The time to scan one line connecting the right edge to the left edge of the screen horizontally is called Horizontal Cycle and the inverse number of the Horizontal Cycle is called Horizontal Frequency. Unit: kHz

Vertical Frequency
Like a fluorescent lamp, the screen has to repeat the same image many times per second to display an image to the user. The frequency of this repetition is called Vertical Frequency or Refresh Rate. Unit: Hz

14-5 Panel Description

Maker	VENDOR P/N	PANEL_CODE	PANEL_ABB	STICKER_CODE	Remarks
SEC	LT140X1-002	BN07-00004A	SA	BN68-00239H	-
SEC	LT150XS-L01	BN07-00009A	SB		-
SEC	LT150XS-L01-B	BN07-00022A	SC		-
SEC	LTM150XS-L02	BN07-00005A	SD		-
SEC	LT181E2-132	BN07-00001A	SE		-
SEC	LT150XS-T01	BN07-00010A	SF		-
SEC	LTM181E3-132	BN07-00019A	SG		-
SEC	LT170E2-131	BN07-10001D	SH		-
SEC	LT181E2-131	BN07-10001E	SJ		-
SEC	LTM170E4-L01	BN07-00018A	SK		-
SEC	LTM240W1-L01	BN07-00015A	SL		-
SEC	LTM213U3-L01	BN07-00016A	SM		-
SEC	LTM150XH-L01	BN07-00026A	SN		-
SEC	LTM150XH-L03	BN07-00027A	SP		-
SEC	LTM150XS-L01	BN07-00032A	SQ		DELL(ZPD)
SEC	LTM181E4-L01	BN07-00034A	SR		PVA
SEC	LTM170EH-L01	BN07-00036A	SS		TN
SEC	LTM170E5-L01	BN07-00037A	SU		PVA
SEC	LTM150XH-L11	BN07-00041A	SV		-
SEC	LTM213U4-L01	BN07-00039A	SW		PVA
SEC	LTM150XH-L01(ZPD)	BN07-00045A	SX		ZPD
SEC	LTM150XH-L04	BN07-00046A	SY		"New panel with high brightness"
SEC	LTM170W1-L01	BN07-00047A	SZ		Panel for TV
SEC	LTM150XH-L06	BN07-00053A	EA		Panel for TV/ High luminance for 450cd _ SONY&EOS Team Panel for TV
SEC	LTM153W1-L01	BN07-00054A	EB		Use NIKE MODEL
SEC	LTM170EH-L05	BN07-00055A	EC		Panel EOS proj. for high brightness of 17" EH-L05
SEC	LTM170E5-L03	BN07-00056A	ED		Dell 1702FP pro. E4. EH mechanicalCompatible
SEC	LTM190E1-L01	BN07-00057A	EE		DELL 1900 FP
SEC	LTM181E5-L01	BN07-00061A	EF		18" narrow bezel GH18PS
SEC	LTM150XP-L01	BN07-00065A	EG		AMLCD PVA PANEL
SEC	LTM240W1-L02	BN07-00062A	EH		Panel for 15" Wide TV
SEC	LTM170EU-L01	BN07-00071A	EJ		Slim design, TN
SEC	LTM170E5-L04	BN07-00072A	EK		E5-L04 6 bits FRC... for IBM
SEC	LTA220W1-L01	BN07-00074A	EL		Panel for 22" TV
SEC	LTM170E6-L02	BN07-00075A	EM		AMLCD Narrow & slim design 17" PVAmode
SEC	LTM170W1-L01	BN07-00082A	EN		LTM170W1-L01 ZPD panel
SEC	LTM170EH-L01	BN07-00080A	EP		LTM170EH-L01 ZPD panel
SEC	LTM170E5-L01	BN07-00081A	EQ		LTM170E5-L01 ZPD panel
SEC	LTM170EH-L05	BN07-00083A	ER		LTM170EH-L05 ZPD panel
SEC	LTM170E5-L03	BN07-00084A	ES		LTM170E5-L03 ZPD panel
SEC	LTM170EU-L01	BN07-00085A	ET		LTM170EU-L01 ZPD panel
SEC	LTM170E5-L04	BN07-00086A	EU		LTM170E5-L04 ZPD panel
SEC	LTM170E6-L02	BN07-00087A	EV		LTM170E6-L02 ZPD panel
SEC	LTM150XH-L06	BN07-00091A	EW		"Color coordinates change for LCD TV"
SEC	LTM153W1-L01	BN07-00092A	EX		AMLCD WIDE 15",9/10
SEC	LTM170W1-L01	BN07-00100A	EY		"Color Coordinates change code management"
SEC	LTM170EH-L05	BN07-00097A	EZ		"LTM170E5-L05 Color Coordinates Change Panel Code"
SEC	LTA400W1-L01	BN07-00109A	S1		"PANEL of AMLCD 40"" TV"
SEC	LTM153W1-L01	BN07-00110A	S2		"Color coordinates change 0.280/0.290, 10000k & ZPD Panel"
SEC	LTM150XH-L06	BN07-00111A	S3		"Color coordinates change 0.280/0.290, 10000k & ZPD Panel"
SEC	LTM170W1-L01	BN07-00112A	S4		"Color coordinates change 0.280/0.290, 10000k & ZPD Panel"
SEC	LTM170EH-L05	BN07-00113A	S5		"Color coordinates change 0.280/0.290, 10000k & ZPD Panel"
SEC	LTM220W1-L01	BN07-00114A	S6		"ZPD Panel for AMLCD 22"" TV"

Maker	VENDOR P/N	PANEL_CODE	PANEL_ABB	STICKER_CODE	Remarks
SEC	LTM150XH-L06	BN07-00117A	S7		"ZPD Panel code"
SEC	LTM153W1-L01	BN07-00118A	S8		"ZPD Panel code"
SEC	LTM170WP-L01	BN07-00119A	S9		"PVA Panel for NIKE"
SEC	LTM213U4-L01	BN07-00039A	E1		21.3" NARROW
SEC	LTA260W1-L01	BN07-00121A	E2		VENUS
SEC	LTA220W1-L01	BN07-00074B	E3		"Panel B-level panel code for 22"" TV Panel "
SEC	LTA320W1-L01	BN07-00108A	E4		"Panel for AMLCD 32"" TV"
SEC	LTM213U4-L01	BN07-00124A	E5		NARROW BEZEL 21 " PANEL
SEC	LTM170E6-L04	BN07-00129A	E6		"HIGHLAND 17"" LOW PANEL (Panel only for TCO03)"
SEC	LTM190E1-L01	BN07-00088A	E7		LTM190E1-L01 ZPD panel
SEC	M150X4-L06	BN07-00137A	E8		15" Narrow & Slim panel
SEC	LTA170V1	BN07-00139A	E9		"17"" Panel for Muse 4:3 VGA TV"
SEC	LTM190E1-L02	BN07-00128A	E10		"New Panel from AMLCDl, Specification : 6bit Driver IC"
SEC	LTM170EX-L01	BN07-00143A	E11		"Development new Panel from AMLCD"
SEC	LTM170E8-L01	BN07-00144A	E12		"Development new Panel from AMLCD"
SEC	LTM170E6-L04	BN07-00129B	E13		"ZPD panel for AMLCD (Panel only for TCO03)"
SEC	LTA320W1-L02	BN07-00108B	E14		"Creat B-level Panel code for AMLCD 32"" TV"
SEC	LTM190E1-L03	BN07-00151A	E15		"Development new 19"" Panel form AMLCD (Panel only for TCO03)"
SEC	LTM240W1-L03	BN07-00134A	E16		"AMLCD 24"" panel development"
SEC	LTM190E1-L02	BN07-00128B	E17		"New Panel from AMLCD, Specification : 6bit Driver IC(ZPD)"
SEC	LTM190E4-L01	BN07-00145A	E18		"AMLCD 24"" new panel development"
SEC	LTM170E8-L01	BN07-00158A	E19		"ZPD code derivation"
SEC	LTM170EX-L01	BN07-00159A	E20		"ZPD code derivation"
SEC	LTM190E1-L03	BN07-00151B	E21		"Creat new panel code for AMLCD 19"" (Panel only for TCO03)"
SEC	LTA460H1-L01	BN07-00157A	E22		"creat panel code for AMLCD 46"" TV "
SEC	LTM170EU-L11	BN07-00160A	E23		"creat new panel code for AMLCD 17"" (Panel only for TCO03)"
SEC	LTM240W1-L03	BN07-00134B	E24		"24"" panel ZPD code derivation"
SEC	LTM190E4-L01	BN07-00145B	E25		"AMLCD 19"" ZPD Panel code derivation"
SEC	LTM240W1-L03	BN07-00134B	E26		24" panel ZPD code derivation
SEC	LTM150XO-L01	BN07-00164A	E27		AMLCD 15" XO-L01 new panel development
SEC	LTM150XO-L01	BN07-00164B	E28		AMLCD 15" XO-L01 ZPD code derivation
SEC	LTM170EU-L11	BN07-00160B	E29		AMLCD 17" NEW panel code derivation
SEC	LTA320W2-L01	BN07-00172A	SPZ		AMLCD 32" NEW panel
SEC	LTM213U4-L01	BN07-00124B	SPZ		21.3" Narrow PANEL ZPD Panel derivation
SEC	LTM170EU-L11	BN07-00189A	STH		AMLCD EU-L11 Pb free panel code derivtion
SEC	LTM170EU-L11	BN07-00189B	STZ		AMLCD EU-L11 Pb free panel ZPD code derivation
SEC	LTM240W1-L04	BN07-00188A	SPH		24" A-DCC new panel development
SEC	LTM190EX-L01	BN07-00191A	STH		AMLCD 19" TN new Panel
SEC	LTM190EX-L02	BN07-00191B	STZ		AMLCD 19" TN new Panel ZPD derivation
SEC	LTA230W1-L02	BN07-00184A	SPZ		AMLCD 23" 16:9 new Panel
SEC	LTA260W2-L01	BN07-00185A	SPZ		AMLCD 26" 16:9 new Panel
SEC	LTM240M1-L01	BN07-00195A	SPH		24" panel with high brightness deveiopment
SEC	LTA400W2-L01	BN07-00186A	SPZ		AMLCD 40" 16:9 new Panel
SEC	LTM150XO-L01	BN07-00197A	STH		AMLCD 15" XO-L01 Pb free panel code
SEC	LTM150XO-L01	BN07-00197B	STZ		AMLCD 15" XO-L01 Pb free panel ZPD code
SEC	LTM170EU-L21	BN07-00202A	STZ		AMLCD EU-L21 ZPD new code derivation
SEC	LTA460W2-L03	BN07-00187A	SPZ		BEETOVEN 46"ZPD new Panel
CPT	CLAA150XG09	BN07-00141A	PA		CPT 15" Monitor new panel development
CPT	CLAA170EA02	BN07-00148A	PB		17" CPT NEW development panel
CPT	CLAA170EA02	BN07-00148B	PC		17" CPT ZPD panel code derivation
CPT	CLAA150XG09	BN07-00141B	PTZ		"CPT 15"" panel ZPD code derivation (GOYA-PJT)"
CPT	CLAA150XP01	BN07-00173A	PTH		CPT 15" PSWG code derivation
CPT	CLAA150XP01	BN07-00173B	PTZ		CPT 15" PSWG panel ZPD code

Maker	VENDOR P/N	PANEL_CODE	PANEL_ABB	STICKER_CODE	Remarks
CPT	CLAA170EA07	BN07-00174A	PTH		"CPT 17"" PSWG panel code derivation?
CPT	CLAA170EA07	BN07-00174B	PTZ		CPT 17""""" PSWG type new Panel code"""
CPT	CLAA170EA07	BN07-00174B	PTZ		CPT 17" PSWG type new Panel code
TOSHIBA	LTM15C419(A)	BN07-00002A	TA		-
TOSHIBA	LTM15C423(B)	BN07-00006A	TB		-
TOSHIBA	LTM18C161	BN07-00008A	TC		-
TOSHIBA	LTM15C443	BN07-00031A	TD		-
TOSHIBA	LTM15C458	BN07-00043A	TE		-
TOSHIBA	LTM15C458S	BN07-00077A	TF		"TSB 15"" high brightness Panel"
TOSHIBA	LTM15C458	BN07-00078A	TG		Toshiba ZPD panel
TOSHIBA	LTM15C458S	BN07-00099A	TH		TSB LTM15C458S (ZPD)
HANNSTAR	HSD150MX41A(A)	BN07-00020A	NA		"TTL type"
HANNSTAR	HSD150MX12	BN07-00030A	NB		"TTL type"
HANNSTAR	HSD170ME13	BN07-00180A	NTH		Hannstar 17" TN new panel development
HANNSTAR	HSD170ME13	BN07-00180B	NTZ		Hannstar 17" TN new panel development ZPD code derivation
TORISAN	TM150XG-22L03(A)	BN07-00021A	RA		-
TORISAN	TM150XG-26L06	BN07-00042A	RB		-
TORISAN	TM181SX-76N01	BN07-00048A	RC		-
TORISAN	TM150XG-26L06	BN07-00059A	RD		15" XGA TN MODE(ZPD)
TORISAN	TM290WX-71N31	BN07-00063A	RE		"RS24NS (TORISAN 29"" NEW PANEL)"
TORISAN	TM396WX-71N31	BN07-00064A	RF		"RS24NS (TORISAN 40"" NEW PANEL)"
TORISAN	TM150XG-26L09	BN07-00073A	RG		"Panel for 15"" TV"
TORISAN	TM150XG-26L10	BN07-00089A	RH		"L10(change except D/IC) ZPD"
TORISAN	TM150XG-26L10	BN07-00090A	RJ		L10 NORMAL
TORISAN	TM190SX-70N01	BN07-00098A	RK		Torisan 19" Panel
TORISAN	TM181SX-76N01	BN07-00106A	RL		ZPD Panel code
TORISAN	TM190SX-70N01	BN07-00107A	RM		ZPD Panel code
TORISAN	TM290WX-71N31	BN07-00115A	RN		"Color Coordinates change panel for TORISAN 29"" TV"
TORISAN	TM396WX-71N31	BN07-00116A	RP,Q		"Color Coordinates change panel for TORISAN 40"" TV"
TORISAN	TM22OWX-71N31	BN07-00125A	RR		"Development TORISAN 22"" TV PANEL (ZPD)"
TORISAN	TM22OWX-71N31	BN07-00127A	RS		"Development TORISAN 22"" TV PANEL (HPD)"
TORISAN	TM396WX-71N32A	BN07-00150A	RT		120V inverter Exclusive panel
TORISAN	TM190SX-70N02	BN07-00154A	RMH		Torisan 6bit panel code Derivation
TORISAN	TM190SX-70N02	BN07-00154B	RMZ		Torisan 6bit panel code Derivation
SHARP	LQ181E1DG11(A)	BN07-10001C	PA		-
SHARP	LQ150X1LW71	BN07-00067A	PB		SHARP 15" PVA PANEL
HITACHI	TX38D12VC0CAA(A)	BN07-00003A	HA		-
HITACHI	TX43DVCOCAB	BN07-00060A	HB		17" SXGA PVA MODE
HITACHI	TX43D15VC0CAB	BN07-00101A	HC		ZPD Panel
HITACHI	TX51D11VC0CAB	BN07-00122A	HD		20.1" NARROW
HITACHI	TX54D11VC0CAB	BN07-00123A	HE		21.3" NARROW
HITACHI	TX80D12VC0CAB	BN07-00169A	HIZ		"Development new panel for Hitachi 32"" TV (ZPD)"
HITACHI	TX54D11VC0CAB	BN07-00123B	HIZ		Hitachi 21.3"ZPD panel
IBM	ITSX94S	BN07-00017A	IA		-
UNIPAC	UM170E0	BN07-00028A	UA		Loaded by cisdba
HYUNDAI	HT15X13	BN07-00035A	DA		-

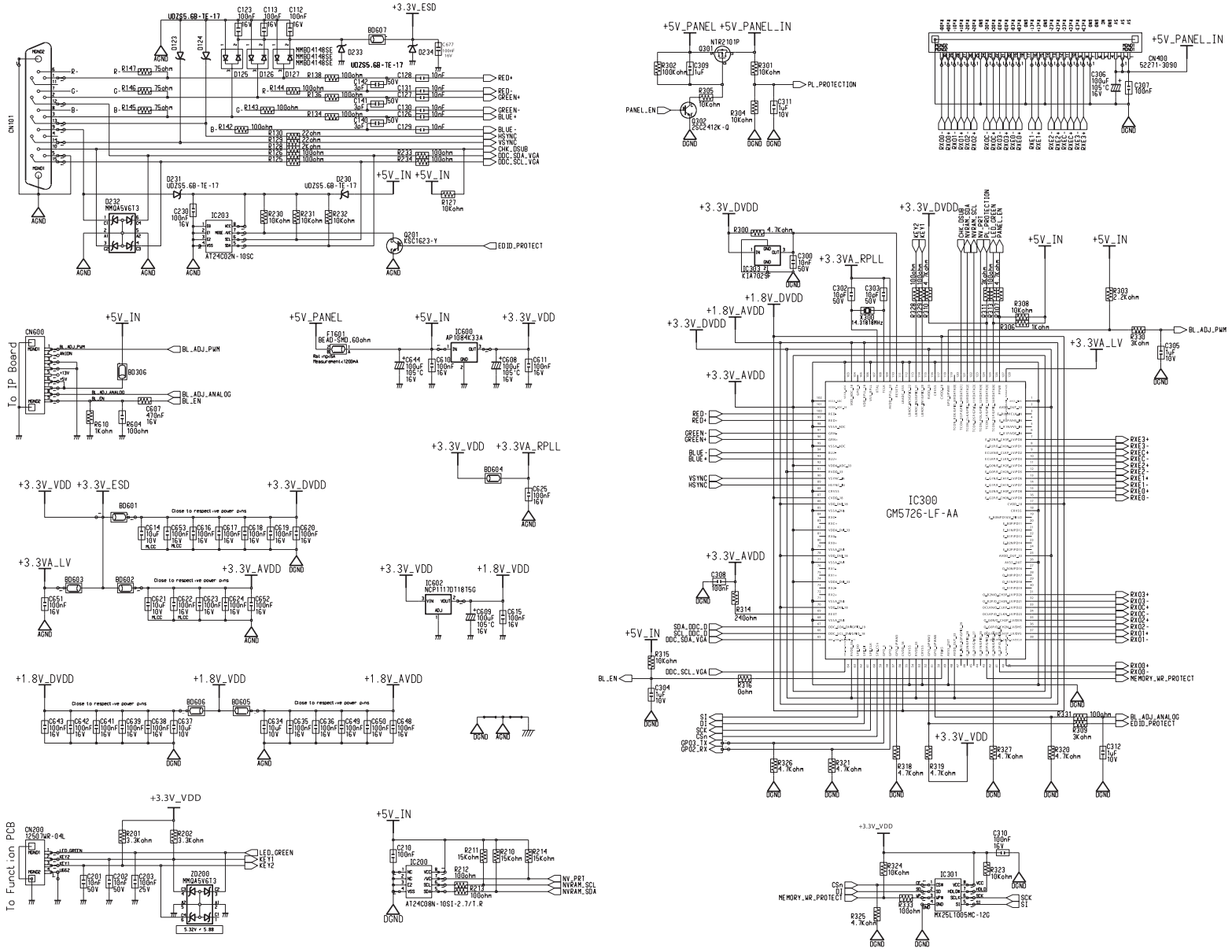
Maker	VENDOR P/N	PANEL_CODE	PANEL_ABB	STICKER_CODE	Remarks
HYUNDAI	HT17E11-200	BN07-00049A	DB		TN MODE
HYUNDAI	HT17E11-300	BN07-00093A	DC		HT17E11-300 ZPD panel
HYUNDAI	HT17E11-400	BN07-00094A	DD		HT17E11-400 normal panel
HYUNDAI	HT17E11-400	BN07-00095A	DE		HT17E11-400 ZPD panel code
HYUNDAI	HT17E12	BN07-00096A	DF		HT17E12 (Narow & slim Design)
HYUNDAI	HT17E12	BN07-00105A	DG		ZPD Panel code
HYUNDAI	HT15X15-D00	BN07-00146A	DH		"Development for Ares 15"" Hydis TV"
HYUNDAI	HT15X15-D01	BN07-00146B	DJ		"Derivation panel HPD for Ares 15"" Hydis TV "
HYUNDAI	HT17E13-100	BN07-00167A	DTH		"PINEHURST-2(IBM) PJT 17"" HYDIS PANEL Derivation"
HYUNDAI	HT17E13-100	BN07-00167B	DTZ		"PINEHURST-2(IBM) Hydis 17"" ZPD code Derivation"
ACER	L170E3	BN07-00044A	AA		TN(ADT)
ACER	M170EN05	BN07-00076A	AB		AU 17" Panel (Narrow & slim design)
ACER	M170EN05	BN07-00102A	AC		ZPD Panel code
ACER	M190EN02	BN07-00170A	AMH		"AU Monitor 19"" new panel development (P19-1S)"
ACER	M190EN02	BN07-00170B	AMZ		"AU 19"" ZPD code derivation (ZPD)"
ACER	M170EN06	BN07-00171A	ATH		"AU Monitor 17"" New panel development"
ACER	T260XW01	BN07-00163A	AMZ		"AU 26"" new panel developm
(NF26EO)"					
ACER	A201SN01	BN07-00177A	ATZ		"AU TV panel 20.1"" TN SVGA new panel development"
ACER	M170EN06	BN07-00171B	ATZ		"AU Monitor 17"" ZPD code Derivation
ACER	T315XW01	BN07-00194A	AMZ		AU 32" new
ACER	M170EG01	BN07-00192A	ATH		AU TN PSWG type new Panel code
ACER	M170EG01	BN07-00192B	ATZ		AU TN PSWG type NEW panel code derivation
CHIMEI	M170E3-LO1	BN07-00050A	CA		TN PANEL
CHIMEI	M150X3-L01	BN07-00051A	CB		COMPATIBLE
CHIMEI	M170E4-L01	BN07-00052A	CC		MVA PANEL
CHIMEI	M150X2-L01	BN07-00066A	CD		CHIME 15"I PVA PANEL
CHIMEI	M150X3-L01	BN07-00079A	CE		Chimei ZPD panel
CHIMEI	M170E3-L01	BN07-00103A	CF		ZPD Panel code
CHIMEI	M170E4-L01	BN07-00104A	CG		ZPD Panel code
CHIMEI	V296W1-L01	BN07-00120A	CH		MVA
CHIMEI	M170E6-L02	BN07-00126A	CJ		HIGHLAND 17" LOW PANEL
CHIMEI	M190E2-L01	BN07-00131A	CK		GH19AS,BS CHIMEI PANEL
CHIMEI	M150X4-L06	BN07-00137A	CL		15" Narrow & Slim panel
CHIMEI	M170E6-L01	BN07-00133A	CM		"2003-03-11 vendor change"
CHIMEI	M170E6-L01	BN07-00133B	CN		"ZPD derivation panel"
CHIMEI	V201V1-T01	BN07-00135A	CP		"CHIMEI 20.1"" panel development"
CHIMEI	M170E6-L02	BN07-00126B	CQ		"HIGHLAND 17"" LOW PANEL ZPD derivation panel"
CHIMEI	M170E6-L05	BN07-00152A	CR		"CMO 17"" new panel development code"
CHIMEI	M170E6-L05	BN07-00152B	CS		"CMO 17"" ZPD panel code derivation"
CHIMEI	M150X4-L06	BN07-00137B	CT		Chimei 15" Narrow & Slim panel ZPD derivation
CHIMEI	M170E5-L05	BN07-00165A	CTH		CMO 17" new panel development code (GOYA2-PJT)
CHIMEI	M170E5-L05	BN07-00165B	CTZ		CMO 17" ZPD panel(GOYA2-PJT)

Memo

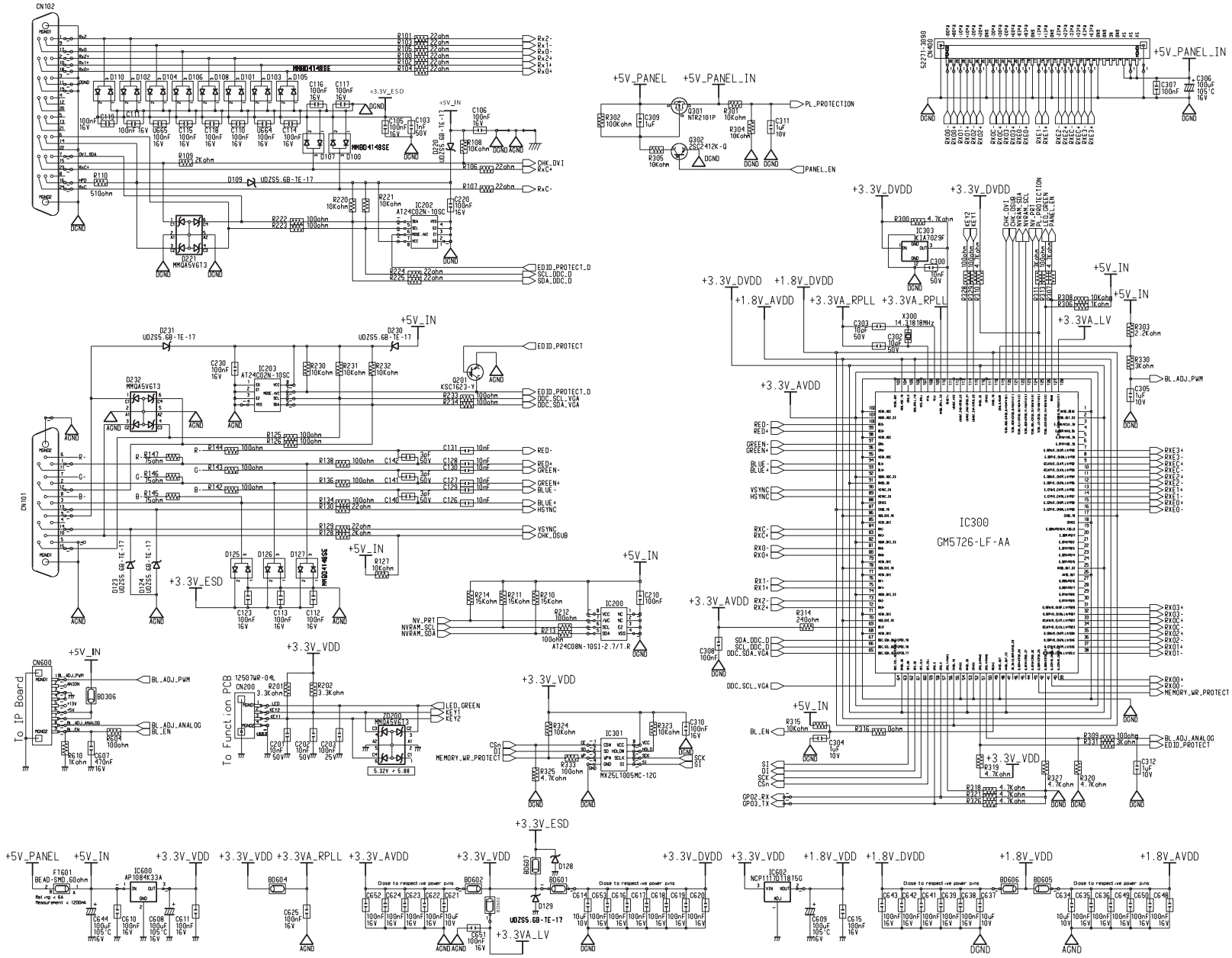
9 Schematic Diagrams

9-1 Schematic Diagrams (LS17PEA, LS19PEA)

- This Document can not be used without Samsung s authorization.



9-2 Schematic Diagrams (LS19PEB)



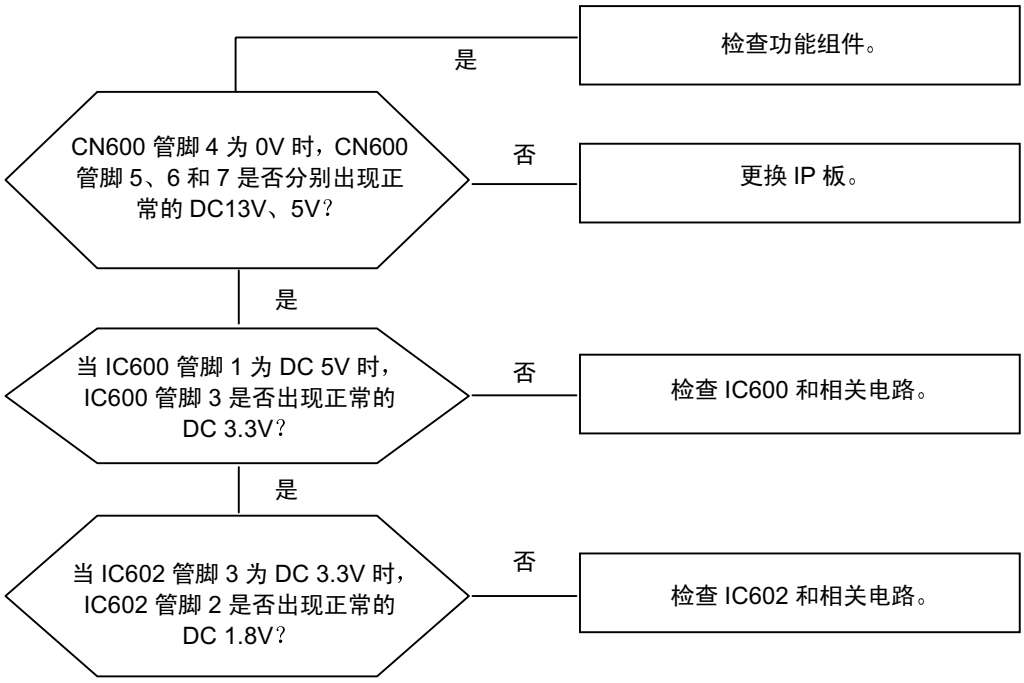
4 故障排除

注意：1. 在进行故障排除之前，按如下方式设置 PC 显示器：
- 分辨率：1024×768
- 水平频率：61 kHz
- 竖直频率：75 Hz

2. 如果没有图像出现，确保正确连接了电源线。
3. 检查以下电路：
- 没有光栅出现：功能印刷电路板组件、主印刷电路板组件、I/P 印刷电路板组件
- 5V 形成，但没有画面：主印刷电路板组件
- 5V 没有形成：I/P 印刷电路板组件

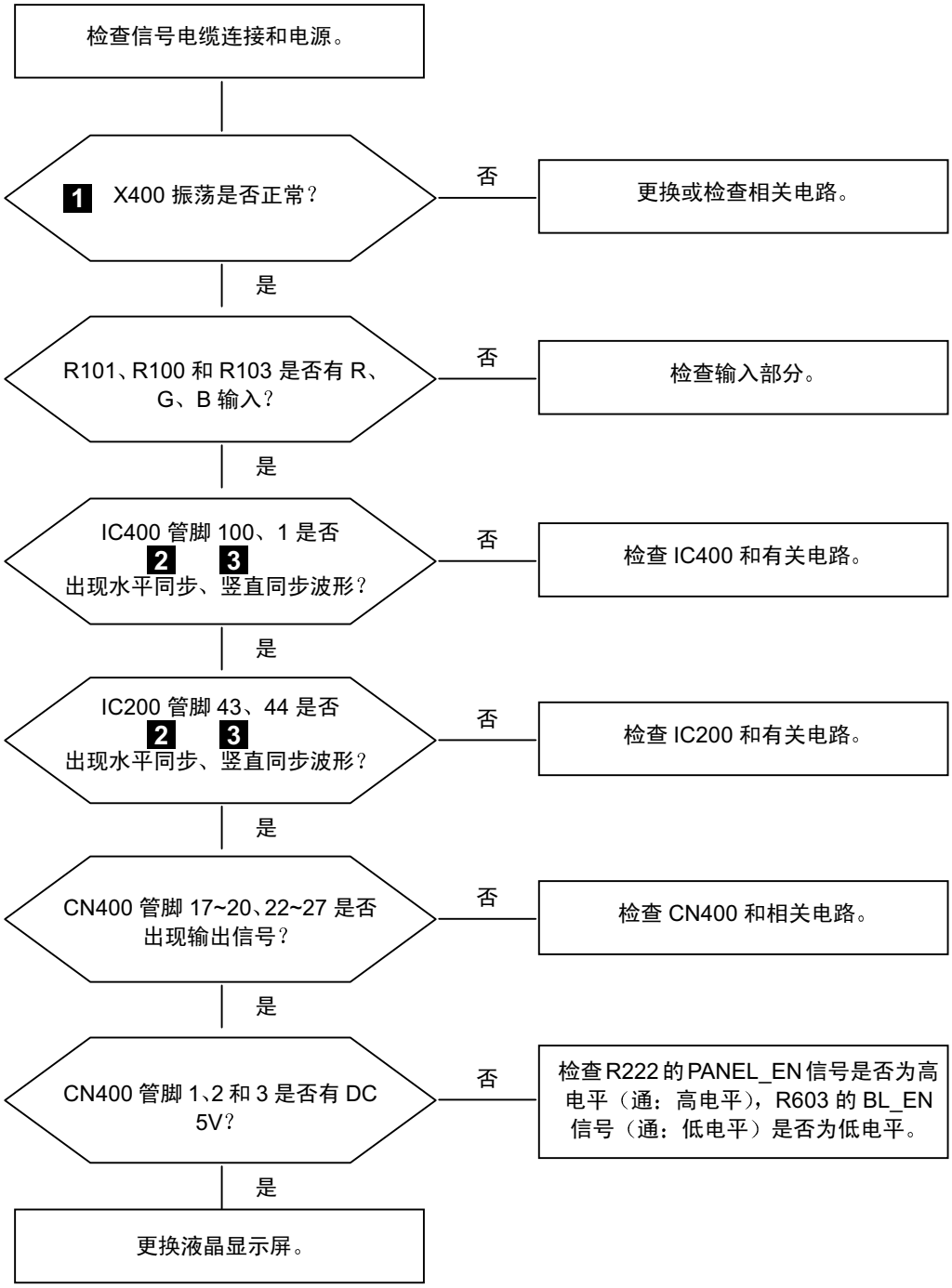
4. 如果按住“↵ (确定/来源)”按钮超过 5 秒，则显示器自动返回工厂预设值。

4-1 未通电(17”、19”)


检查功能组件。
是
CN600 管脚 4 为 0V 时，CN600 管脚 5、6 和 7 是否分别出现正常的 DC13V、5V？
否
更换 IP 板。
是
当 IC600 管脚 1 为 DC 5V 时，IC600 管脚 3 是否出现正常的 DC 3.3V？
否
检查 IC600 和相关电路。
是
当 IC602 管脚 3 为 DC 3.3V 时，IC602 管脚 2 是否出现正常的 DC 1.8V？
否
检查 IC602 和相关电路。

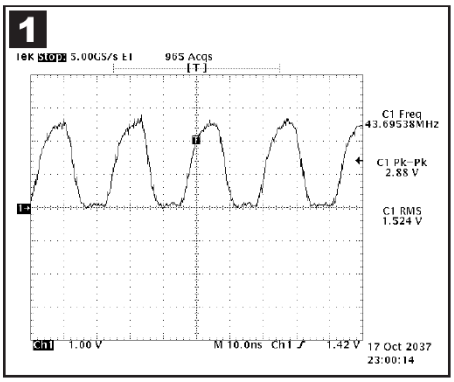
* 本页的所有位置均包括主印刷电路板组件。

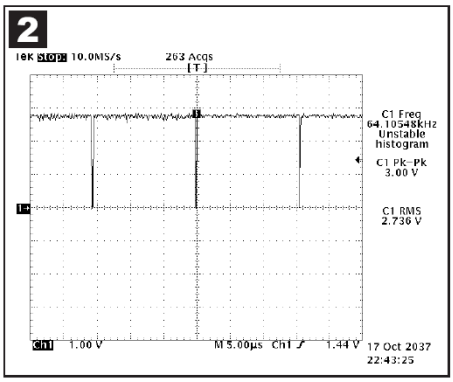
4-2 没有图像（模拟 17”、19”）

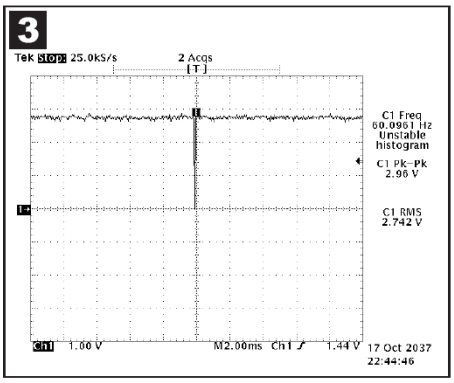


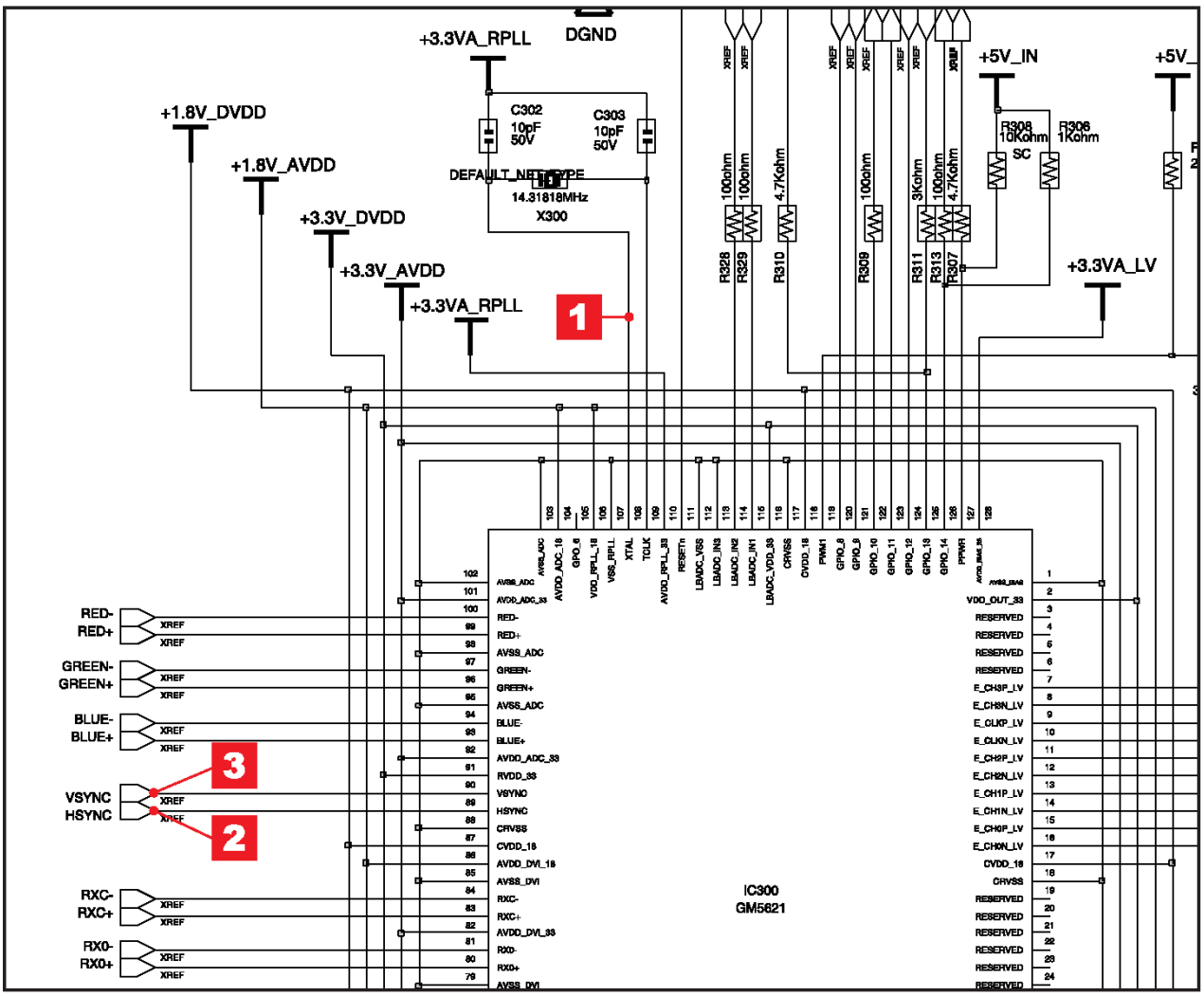
* 本页的所有位置均包括主印刷电路板组件。

波　形

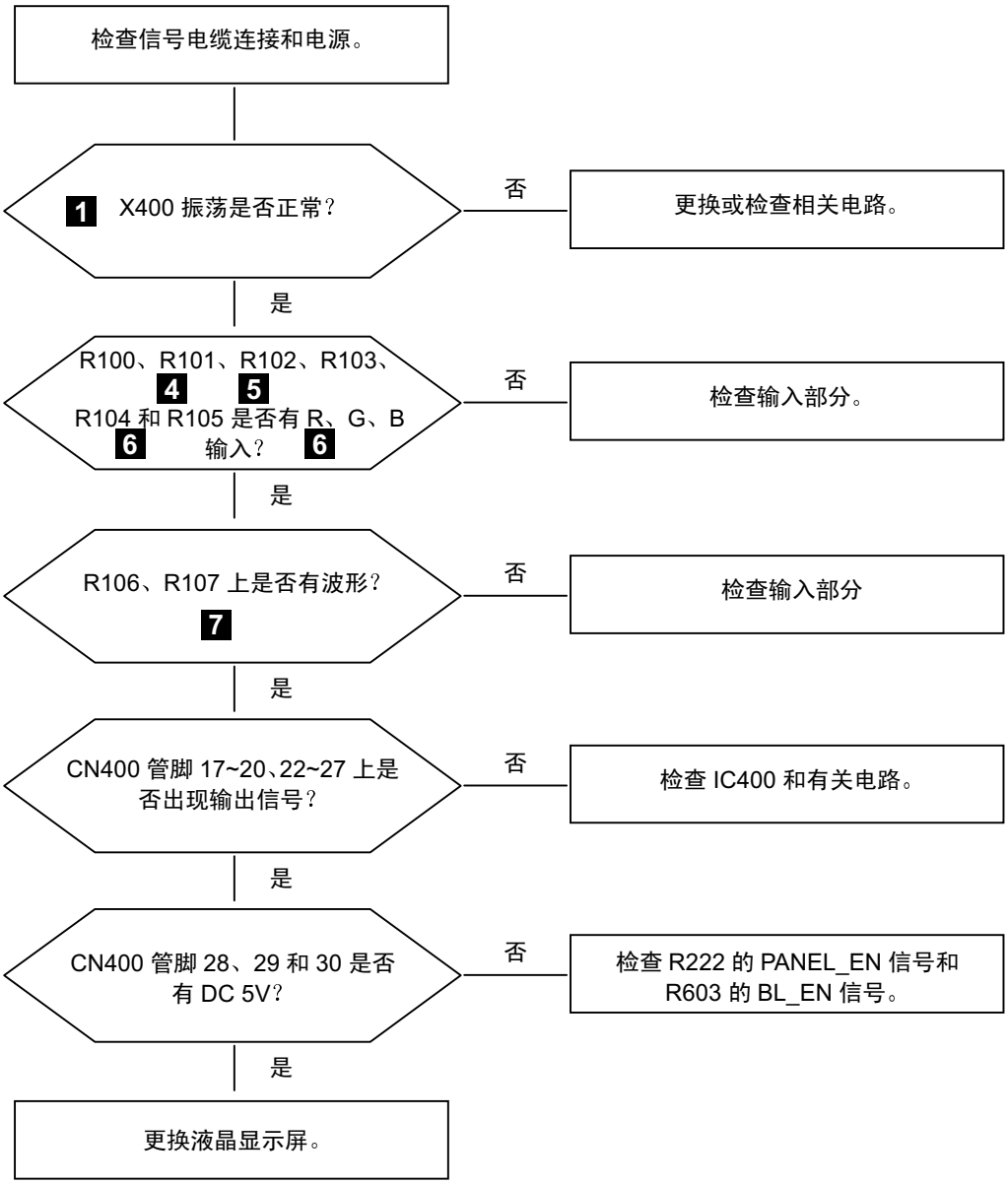

1
Tek Stop 5.00GS/s ET 965 Acqs
C1 Freq 43.69538MHz
C1 Pk-Pk 2.88 V
C1 RMS 1.524 V
Ch1 1.00 V M 10.0ns Ch1 1.42 V 17 Oct 2037 23:00:14


2
Tek Stop 10.0MS/s 203 Acqs
C1 Freq 64.10548kHz Unstable histogram
C1 Pk-Pk 3.00 V
C1 RMS 2.736 V
Ch1 1.00 V M 5.00µs Ch1 1.44 V 17 Oct 2037 22:43:25


3
Tek Stop 25.0kS/s 2 Acqs
C1 Freq 60.0961 Hz Unstable histogram
C1 Pk-Pk 2.96 V
C1 RMS 2.742 V
Ch1 1.00 V M2.00ms Ch1 1.44 V 17 Oct 2037 22:44:46


+3.3VA_RPLL
DGND
+1.8V_DVDD
+1.8V_AVDD
+3.3V_DVDD
+3.3V_AVDD
+3.3VA_RPLL
C302 10pF 50V
C303 10pF 50V
14.31818MHz
X300
+5V_IN
+3.3VA_LV
R328 100ohm
R329 100ohm
R310 4.7Kohm
R309 100ohm
R311 3Kohm
R313 100ohm
R307 4.7Kohm
R308 10Kohm SC
R306 1Kohm
RED-
RED+
GREEN-
GREEN+
BLUE-
BLUE+
VSYNC
HSYNC
RXC-
RXC+
RX0-
RX0+
XREF
IC300
GM5621

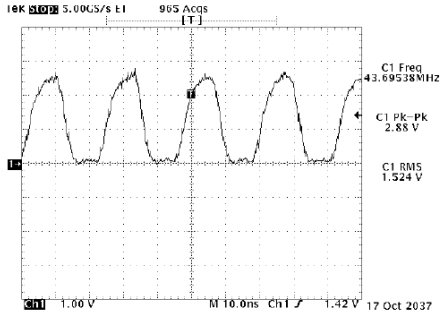
4-3 没有图像（数字 19”）



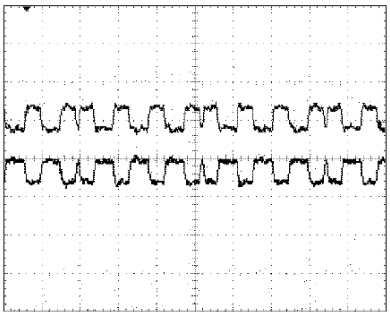
* 本页的所有位置均包括主印刷电路板组件。

波　形

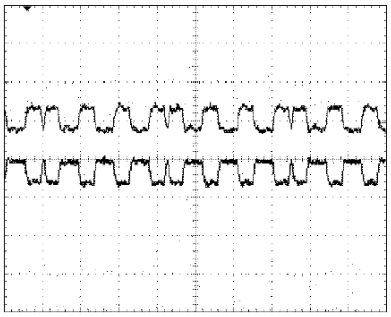
1


16K SLOW 5.00GS/s ET
965 Acqs
C1 Freq
43.69538MHz
C1 Pk-Pk
2.88 V
C1 RMS
1.524 V
Ch1 1.00 V
M 10.0ns Ch1 ƒ 1.42 V
17 Oct 2037
23:00:14

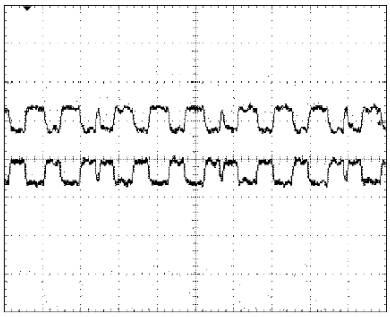
4



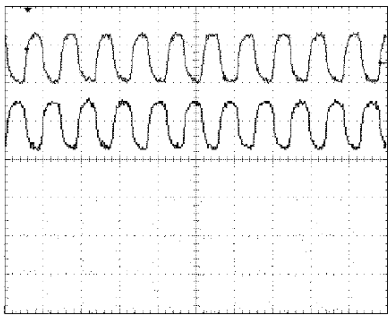
5

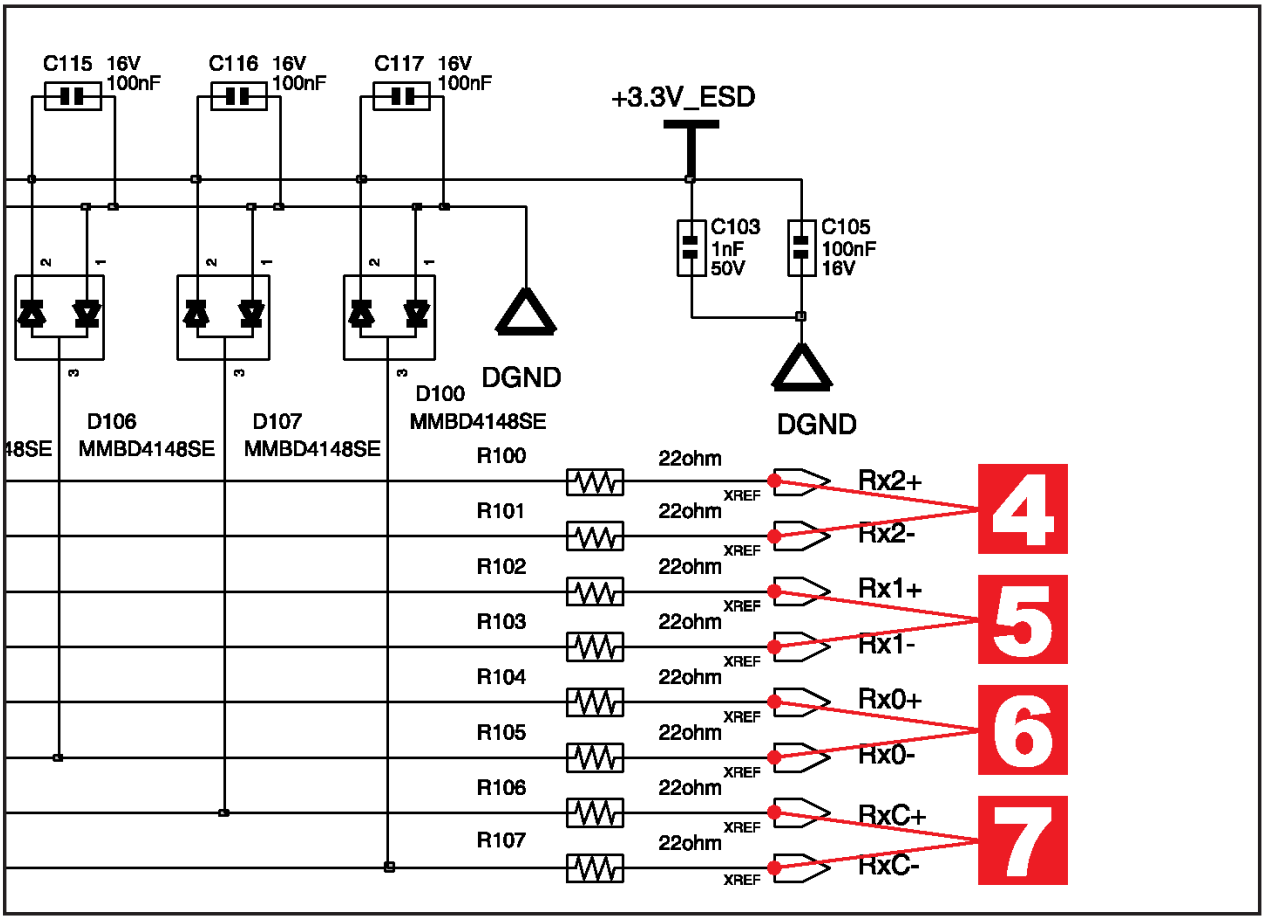


6



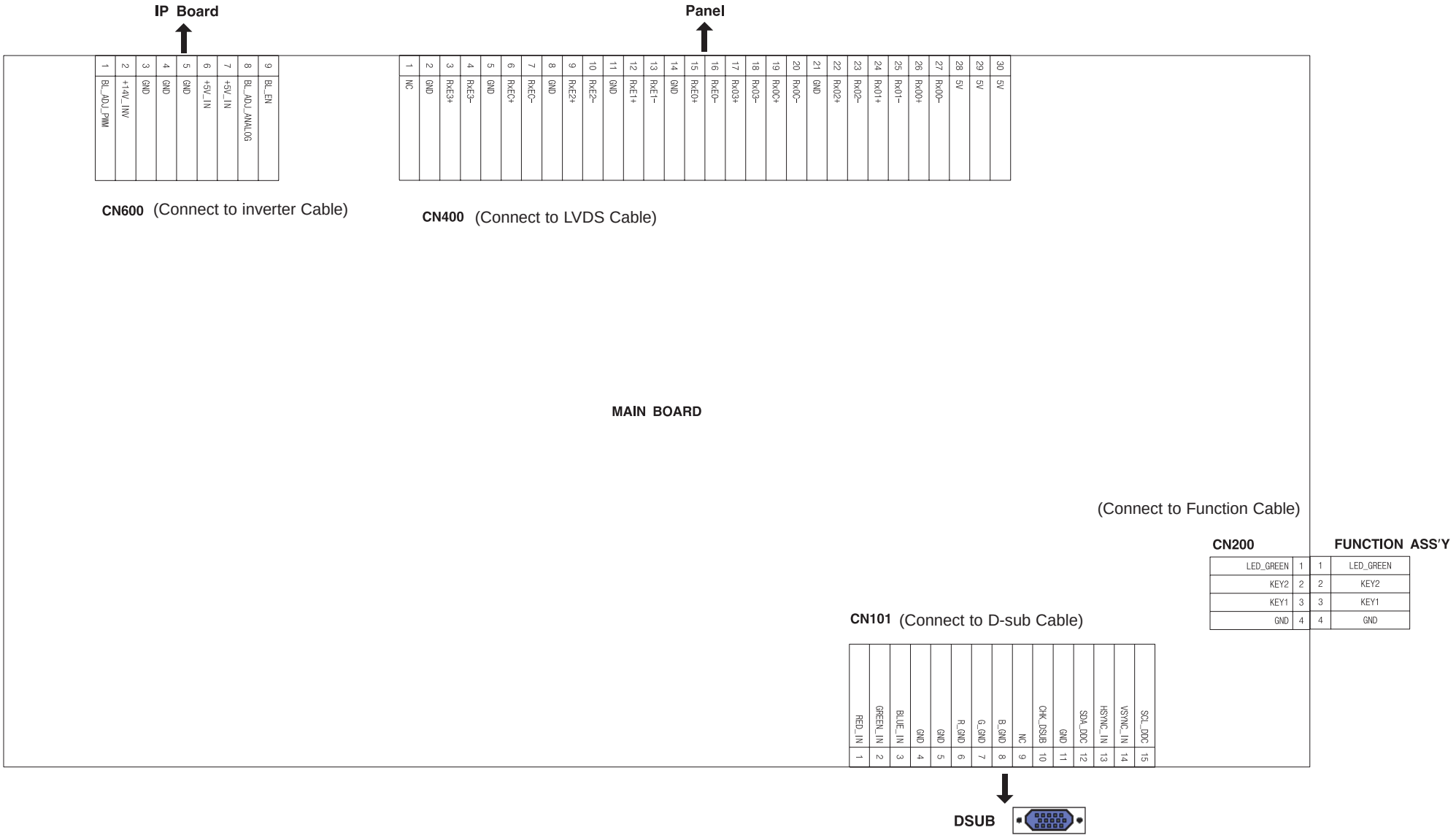
7



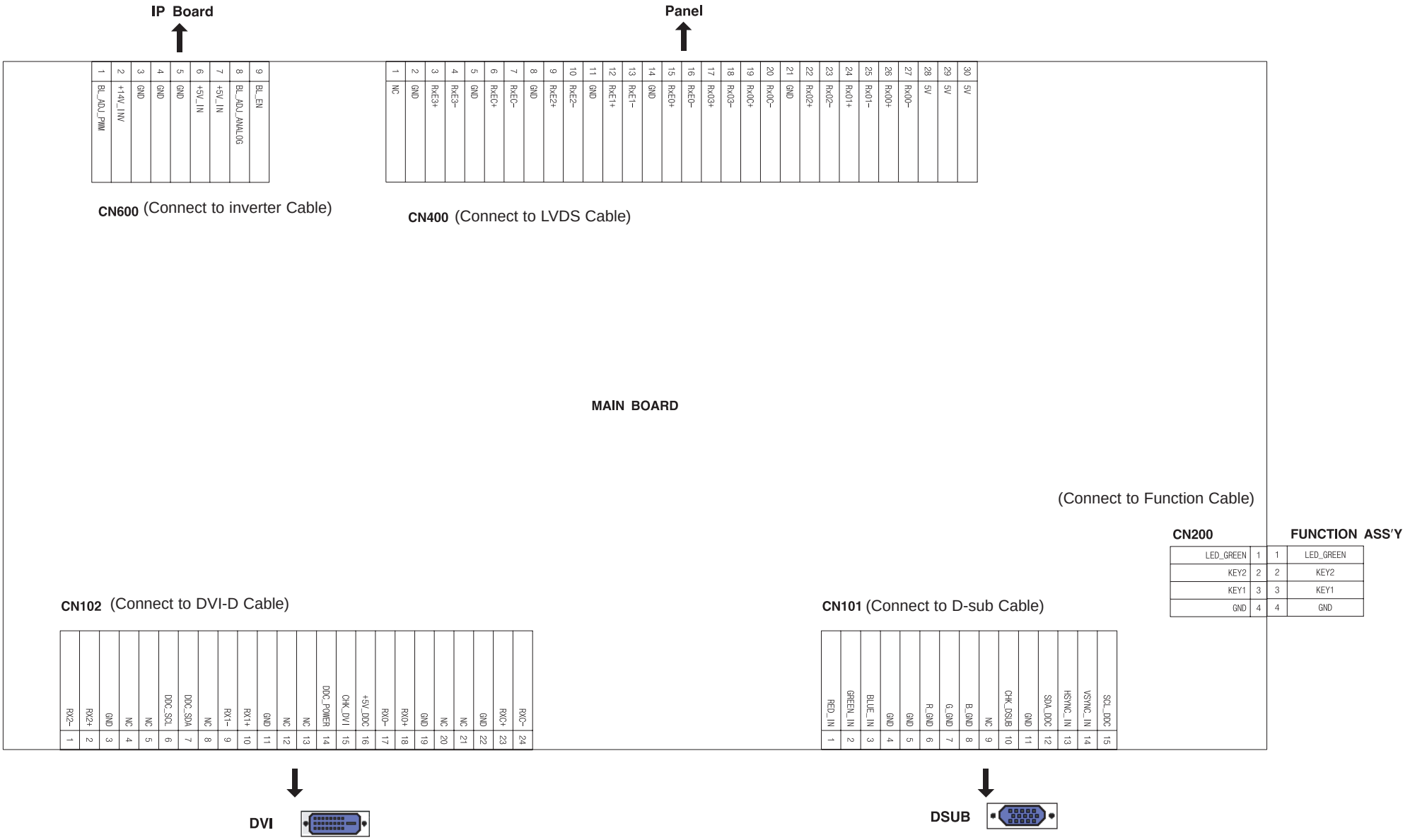

C115 16V 100nF
C116 16V 100nF
C117 16V 100nF
+3.3V_ESD
C103 1nF 50V
C105 100nF 16V
DGND
DGND
D106 MMBD4148SE
D107 MMBD4148SE
D100 MMBD4148SE
R100
R101
R102
R103
R104
R105
R106
R107
22ohm
XREF
Rx2+
Rx2-
Rx1+
Rx1-
Rx0+
Rx0-
RxC+
RxC-
4
5
6
7

8 Wiring Diagram

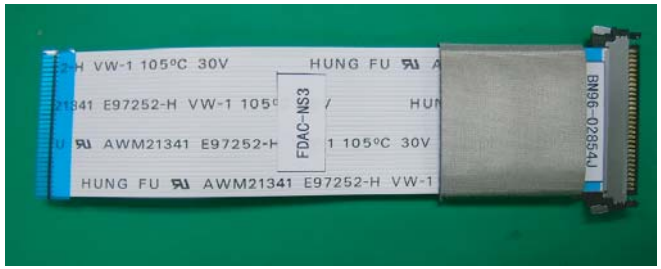
8-1 Wiring Diagram (LS17PEA, LS19PEA)



8-2 Wiring Diagram (LS19PEB)

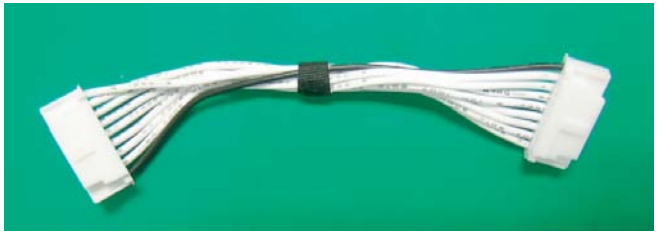


8-3 Wiring Diagram (Code No.)



17" LVDS cable: BN96-02854J

19" LVDS cable: BN96-02854H



IP board - Main PBA Cable: BP39-00028A

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